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AN ATLAS
OF
Practical Histology.

Containing a Series of Drawings, Copied From Specimens, to Assist
in The Practical Work in The Laboratory.

BY
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AND

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Specialist for Drawing of Scientific Objects.



Translated by C. W. F. Muenchhofe, M. D.

CLEVELAND, OHIO.

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Introduction.

THIS ATLAS has been devised by a teacher of histology, who, while engaged in instructing in this branch, became acquainted with those defects and wants which perhaps every student and not a few teachers have experienced.

With the aid of the drawings offered here, for a moderate sum, selected on a liberal scale the student will now be able, having prepared his specimen, to distinguish the various points and parts of a successful preparation, and to recognize the defects of one not so successful.

The teacher on the other hand in explaining any specimen will not so often be obliged to make a sketch himself, in order to enable him to give the necessary explanation of an object the student may be surveying but not understanding.

Thus both teacher and student will gain very much in time and will undoubtedly accomplish a great deal more with this atlas than without it.

In as much as the drawings follow actual specimens very closely, the student will not be bewildered by the great differences that often exist between actual specimens and drawings, which to instruct and be clear are often more or less diagrammatic.

Of course the atlas should be used together with such works as Prudden, Practical Normal Histology (Putnam, N. Y.) or Huber, Directions for the work in the Histological Laboratory (G. Wahr, Ann Arbor) and others.

I desire to thank Dr. C. Sihler for the very valuable assistance rendered in the translating of this book.

The Translator.

I. CELLS AND CELL-DIVISION.

PLATE I.

Cells and Cell-division.

Fig. 1. Vegetable cells in the state of rest. Epidermis of onion-leaf. H. P. Meth. I a. 1 B.

a. cellulose-membrane; b. protoplasm; c. nucleus; d. nucleolus.

Fig. 2. Vegetable cells resting and dividing. Seed-bud of Fritillaria. H. P. Meth. III i. 3 F.

a. resting nucleus; b. spirem; c. monaster; d. diaster.

Fig. 3. Animal cells in the state of rest. Ovarian ova of frog. H. P. Meth. I c. 1 B.

Fig. 4. Cell-division. Homoeotypic Mitoses. Testicle of salamander. H. P. Meth. VI k. 3, 9 F.

a. resting nucleus; b. spirem; c. monaster; d. metakinesis; e. and f. diaster; g. dispirem; h. daughter-cells.

Fig. 5. Cell-structure and cell-division. Heterotypic mitosis. Testicle of salamander. H. P. Meth. VI k. 3, 9 F.

A. Spermatogon in state of rest.

a. nucleus with two nucleoli; b. (para-nucleus) archiplasma.

B. Spermatogon with division of nucleus by constriction (direct cell-division).
a. nucleus with chromatin network; b. archiplasma in ring-form.

C. Spermatocyte in first preparatory stage (Prophasis). Increase of chromosomes.
a. nucleus with chromatin-network; b. archiplasma; c. centro-soma.

D. Spermatocyte in second preparatory stage, chromosomes as rosette-like strands.
a, b, c. as in C.

E. Spirem I.

a. filiform chromosomes undergoing longitudinal fission; b. archiplasma; c. two centrosomata with beginning central spindle.

F. Spirem II.

a. chromosomata; b. archiplasm, rays of;—c. centrosomata with small spindle.

G. Spirem III.

a. chromosomata; b. achromatic spindle; c. centrosoma.

H. Metakinesis.

a, b, c. as in G.

I. Diaster I.

a, b, c. as in G.

K. Diaster II.

a, b, c. as in G. d. parasoma-(stainable.)

L. Dispirem I. beginning cell-constriction.

a, b, c, d. as in K.

M. Dispirem II.

a. chromosomata; b. achromatic spindle constricted into two parts; c. centrosomata;
d. stainable para-soma; e. meta-somata.

N. Anaphasis.

a, b, c, e. as in M.

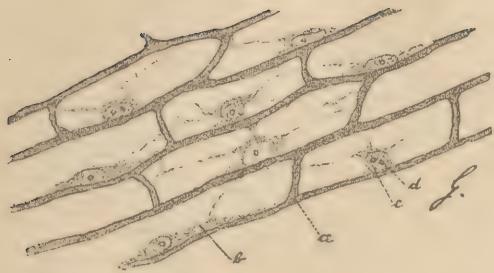


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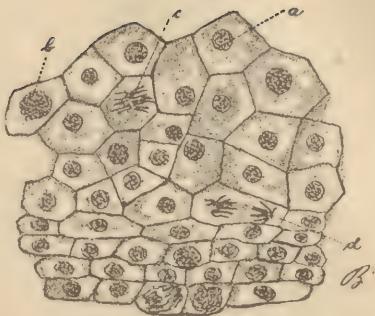


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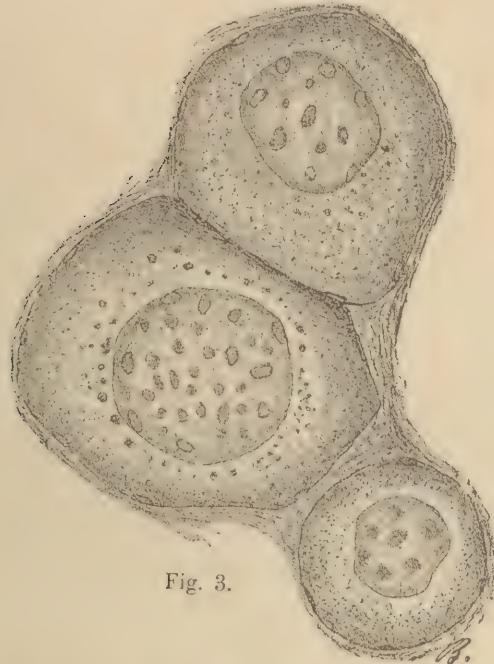


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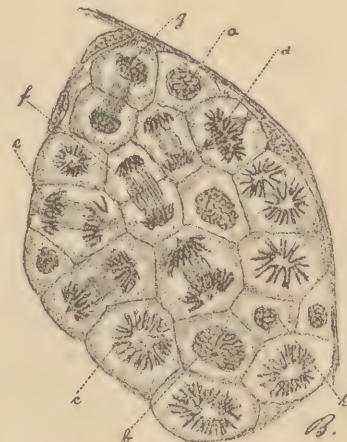


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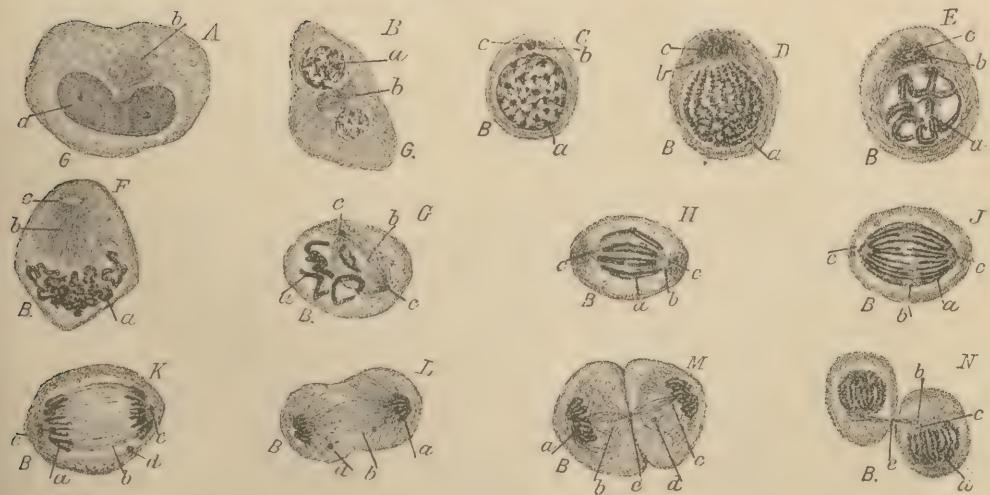


Fig. 5.

II. EPITHELIUM

PLATE II.

Epithelium.

Fig. 1. *Pavement epithelium*, lateral view. Uterus of child. H. P. Meth. III i 5, 7 F.

Fig. 2. Isolated cells of *stratified pavement-epithelium*. Epidermis. H. P. Meth. VIII c, 1 E.

Fig. 3. *Desquamated pavement-epithelium*. Human Saliva. H. P. Meth. I a, 1 B.

Fig. 4. *Stratified pavement-epithelium*. Mucous membrane of mouth. H. P. Meth. III i 5, 7 F.

Fig. 5. *Prickle cells*. (Stratum spinosum). Epidermic nodules of canceroid. H. P. Meth. III i, 5 E.

Intercellular processes a. viewed, from above; b. from side; c. migratory cells in intercellular spaces.

Fig. 6. *Transitional epithelium*, Mucous membrane bladder rabbit. H. P. Meth. VIII c, 1 E.

a. cells of deepest layer; b. cells of middle layer; c. club-shaped cells of more superficial layers; d.¹ cells of upper layer seen from side; d.² cells of upper layer seen from below.

Fig. 7. *Columnar epithelium*. Alveolus of Brunner's gland. H. P. Meth. V i 5, 7 F.

Fig. 8. *Columnar epithelium* with tectorial membrane. Frog's intestine. H. P. Meth. XI c, 13 E.

a. lateral view; b. surface view.

Fig. 9. *Beaker-shaped columnar epithelium*. Mucous membrane, stomach of frog. H. P. Meth XI c, 1 D.

Fig. 10. *Ciliated columnar epithelium* and mucous-cells. Pharynx of frog. H. P. Meth. I d, 1 B.

Fig. 11. *Ciliated columnar epithelium*, vas efferens, human epididymis. H. P. Meth. VII i 6 F.

Fig. 12. *Glandular epithelium*. Livercells rabbit, infiltrated with fat-granules. H. P. Meth. I c, 2 B.

Fig. 13. *Endothelium*, surface view. Posterior corneal epithelium, frog. H. P. Meth. I d, 2 B.

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Fig. 1.

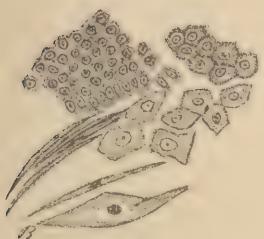


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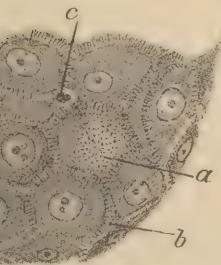


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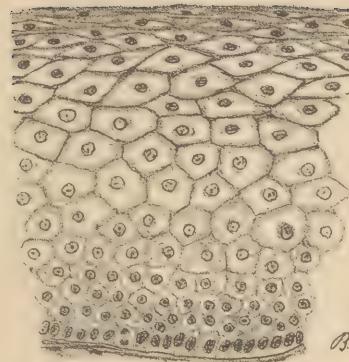


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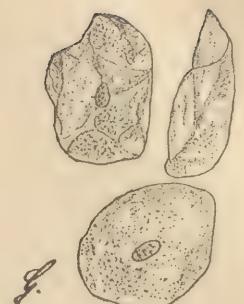


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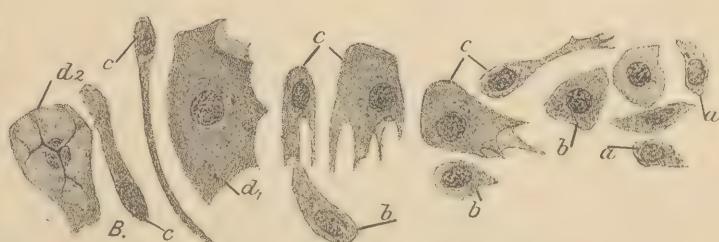


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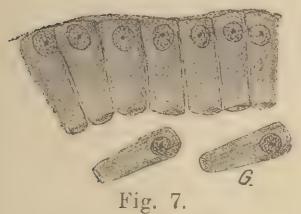


Fig. 7.



Fig. 12.



Fig. 10.

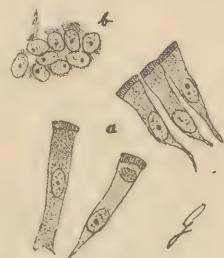


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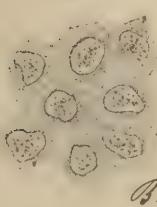


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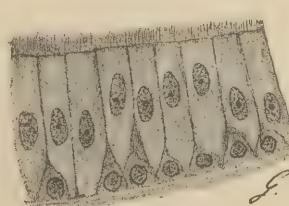


Fig. 11.



Fig. 9.

PLATE III.

Endothelium, Blood and Lymph.

Fig. 1. *Endothelium*, from the peritoneum of frog. P. H. Meth. I c, 14, 5 F.

Fig. 2. *Endothelium and Lymph-stomata*. Peritoneal surface diaphragm of rat.

H. P. Meth. I c, 14, 5 F.

* Lymph-stomata.

Fig. 3. *Lymph*; from oedematous and curarised frog. H. P. Meth. I a, 1 B.

a. red blood-corpuscles; b. white blood-corpuscle—resting; c. initial stage of amoeboid movement; d. leucocyt with amoeboid pseudopodia; e. leucocyte with granulations; f. free fat-granules.

Fig. 4. *Lymph*; from oedematous and curarised frog. H. P. Meth. I a, 1 C.

a. red blood-corpusle; b. mononucleated leucocyte; c. polynucleated leucocyte.

Fig. 5. *Human blood*. H. P. Meth. I a, 1 A.

a. red blood-corpuscle, surface view; b. red blood-corpuscles, nummulated appearance, side view; c. leucocyte; d. leucocyte with granulations; e. blood-plates.

Fig. 6. *Blood-elements from mammals, birds and amphibia*—uniform magnification. (Hartn. Obj. 7 Oc. 3) Meth. I a, 1 A.

Fig. 7. *Developmental forms and varieties of blood-elements* from the red marrow of the dog. H. P. Prepared after Ehrlich. Triacid-staining.

a. red blood-corpuscles (normal); b. red blood-corpuscles, megalocytes; c. nucleated red blood-corpuscles (normo blasts, erythro-blasts with nucleus in various stages of retrograde change); d. megaloblast; e. small lymphocyte; f. large lymphocyte; g. polynucleated leucocyte; h. mono-neucleated leucocyte; i leucocyte with neutrophile granules; k. leucocyte with eosinophile granules; l. giant-cells.

III



Fig. 1.

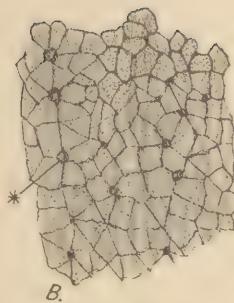


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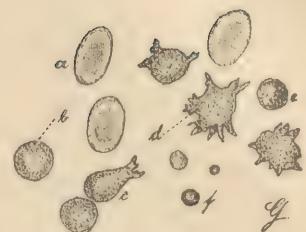


Fig. 3.



Fig. 4.



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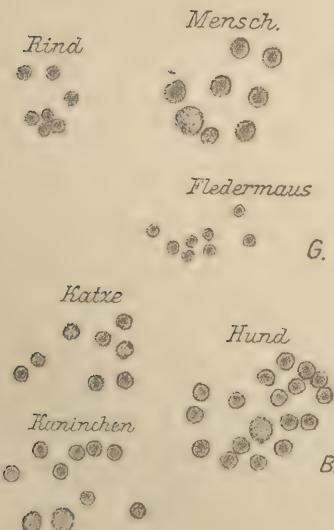


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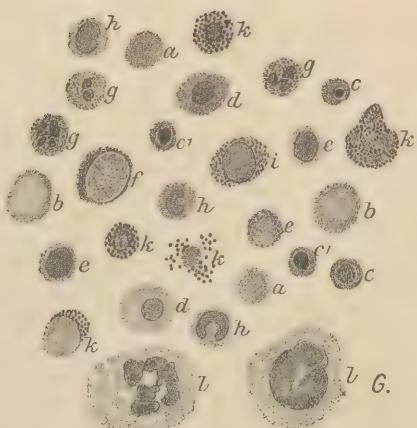


Fig. 7.

IV. CONNECTIVE TISSUE.

PLATE IV.

Connective Tissue.

- Fig. 1. *Mucous tissue.* Human umbilical cord. H. P. Meth VII *i*, 6 *E*.
- Fig. 2. *Tendon.* Cross-section of tendon, calf's foot. M. P. Meth. II *e*, 2 *E*.
a. Bundles of tendon-fibrils with corpuscles; *b.* septa of connective tissue.
- Fig. 3. *Tendon,* from tail of mouse. L. P. Meth. I *a*, 1 *B*.
- Fig. 4. *Tendon-corpuseles,* from tail of mouse. H. P. Meth. 12, *a C*.
* Flange-like processes.
- Fig. 5. *Embryonic tendon.* Tendo achillis of foetal rabbit. H. P. Meth. V *c*, 8 *E*.



Fig. 1.

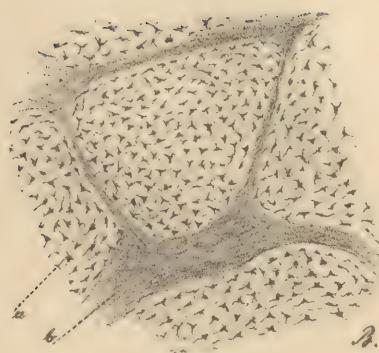


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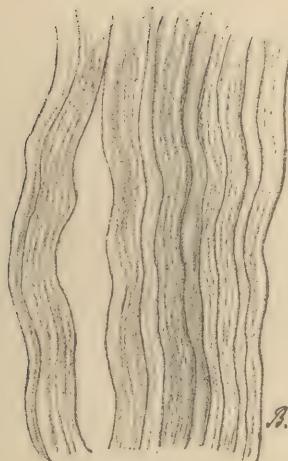


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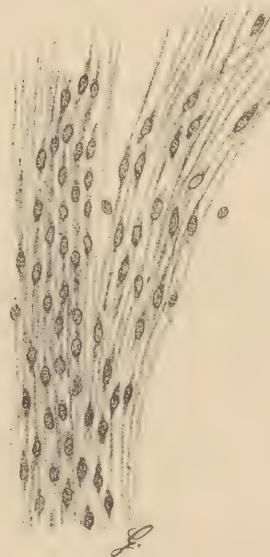


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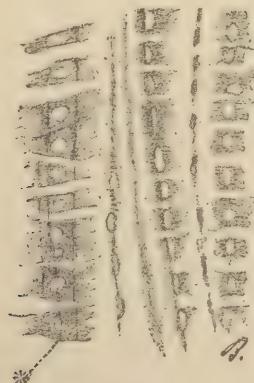


Fig. 4.

V. CONNECTIVE TISSUE.

PLATE V.

Connective Tissue.

Fig. 1. *Areolar connective tissue.* Muscle-fascia rabbit. H. P. Meth. I a, 1 B.
a. white fibre (gelatin forming); b. elastic fibre; c. migratory cell.

Fig. 2. *Areolar connective tissue.* Muscle-fascia rabbit. H. P. Meth. I a, 1 C.
a. fixed connective tissue cells; b. elastic fibres; c. migratory cells.

Fig. 3. *Yellow elastic tissue.* Transverse section ligamentum nuchae, calf. L. P.
Meth. V e 5, 8 E.

a. cross-section elastic fibres; b. connective tissue sheath; c. blood-vessel.

Fig. 4. *Fat-cells and fat-granules.* Fat-body frog. H. P. Meth. I c, 2 B.

Fig. 5. *Reticular connective tissue.* Omentum rabbit. H. P. Meth. I a, 1 B.
a. plasma cells; b. fat cells.

Fig. 6. *Adipose tissue.* Subcutaneous connective tissue, man. H. P. Meth. III.
i 5, 7 F.

a. connective tissue; b. fat-cells.



Fig. 1.

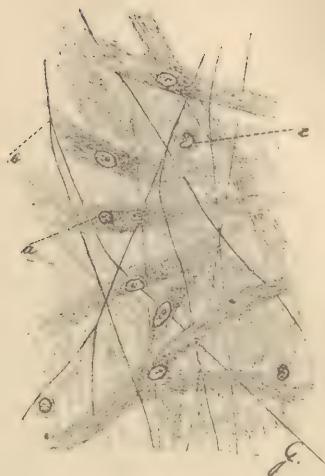


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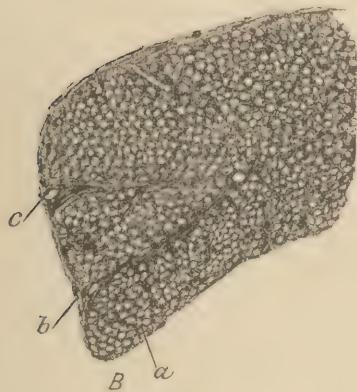


Fig. 3.



Fig. 4.



Fig. 5.

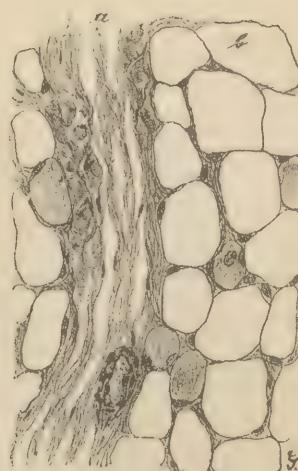


Fig. 6.

VI. LYMPHADENOID TISSUE AND CARTILAGE.

PLATE VI.

Lymphadenoid tissue and cartilage.

Fig. 1. *Lymphadenoid tissue.* Lymphatic gland, dog. H. P. Meth. V *f*, 5 *E*.
a. lymph-corpuses; b. reticular connective tissue; c. cells of reticular connective tissue.

Fig. 2. *Cartilage of chorda dorsalis.* Transverse section spinal cord sturgeon. H. P. Meth. III *i* 5, 7 *F*.
a. sheath of chorda; b. chorda-cells.

Fig. 3. *Hyaline Cartilage.* Section head of femur, frog. H. P. Meth. I *e*, 1 *B*.
a. shrunken cartilage cells; b. empty cell-spaces.

Fig. 4. *Fibro-cartilage.* Section intervertebral cartilage, calf's tail. H. P. Meth. III *e* 5, 7 *F*.
a. perichondrium.

Fig. 5. *Elastic cartilage.* External ear, calf. H. P. Meth. V. *i* 5, 8 *F*.
a. perichondrium.

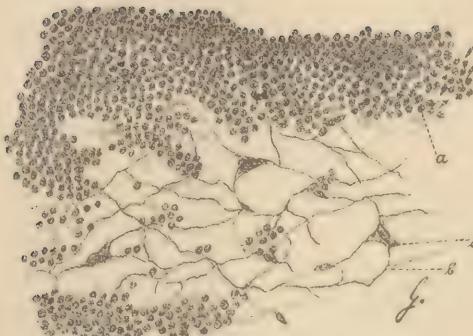


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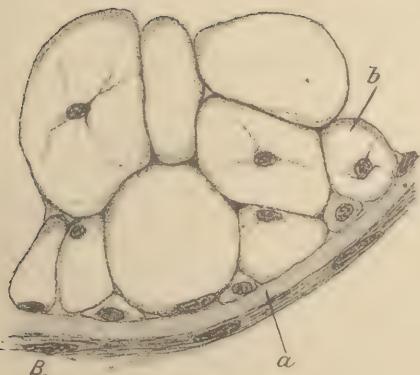


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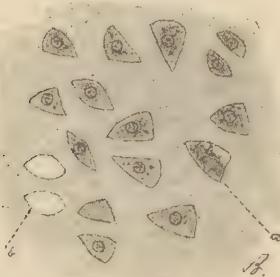


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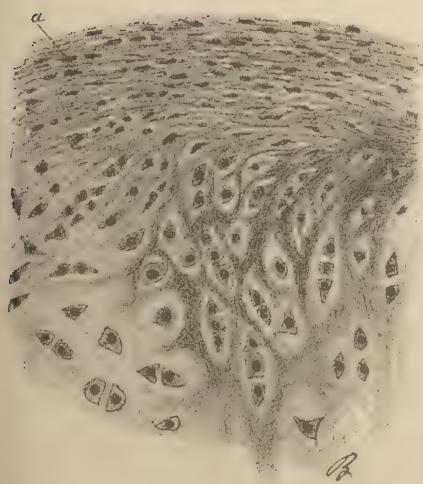


Fig. 4.



Fig. 5.

VII. DEVELOPMENT OF BONE.

PLATE VII.

Development of bone.

Fig. 1. *Ossification of a long bone*; general view. Longitudinal section of the femur of a six months human foetus. L. P. Meth. VII i 5, 7 F.

a. epiphyseal cartilage; b. epiphyseal line; c. bone-substance; d. periosteum; e. medullary canal.

Fig. 2. *Ossification of a long bone*. The epiphyseal line and its surroundings. Femur of six months human foetus. H. P. Meth. VII i 5, 7 F.

a. hyaline cartilage; b. region of proliferation of cartilage cells; c. arrangement of cells in columns; d. rarification of the matrix, enlargement of cell-cavities; e. osseous columns with bone-corpuscles; medullary spaces with osteoblasts.

Fig. 3. *Ossification of a long bone*. Periosteal ossification. Femur of six months human foetus. H. P. Meth. VII i 5, 7 F.

a. periosteum, fibrous layer above, mucous layer below; b. osteoblasts; c. columns of bone with bone-corpuscles.

Fig. 4. *Cells of bone-marrow*. H. P. Meth. I c 1 B. Red blood-corpuscles, leucocytes, giant-cells.

a. nucleated red blood-corpuscles.



Fig. 1.

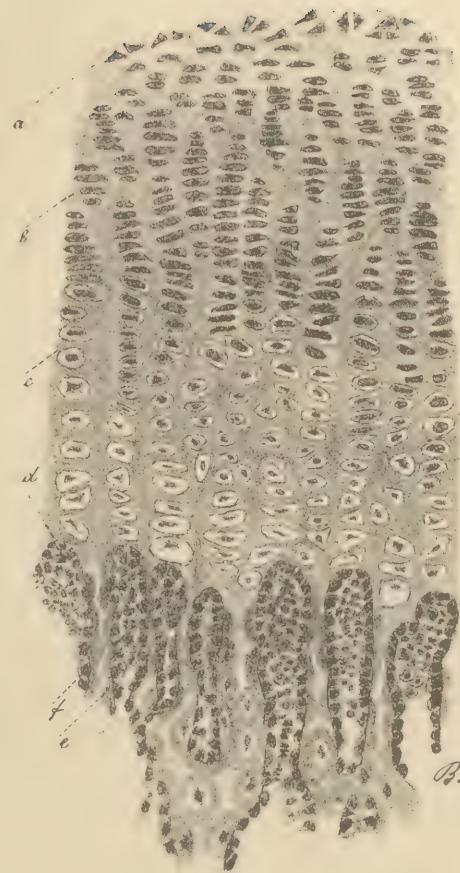


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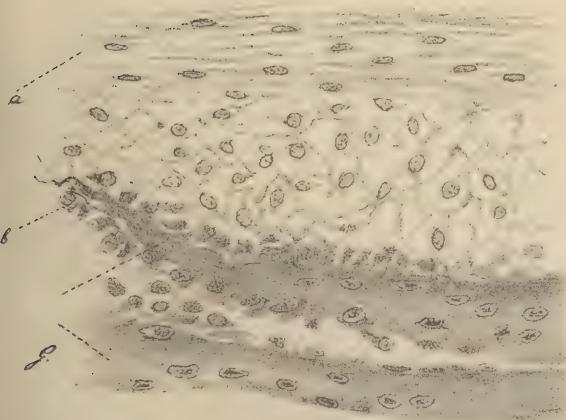


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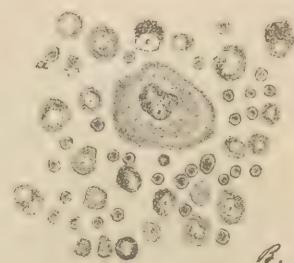


Fig. 4.

VIII. OSSEOUS AND DENTAL TISSUES.

PLATE VIII.

Osseous and Dental Tissues.

Fig. 1. *Long bone.* Longitudinal section femur, dog. M. P. Meth. XV e, 2 E.
* Haversian canal.

Fig. 2. *Long bone.* Transverse section femur, dog. M. P. Meth. XV e 2 E.
a. Haversian canal and lamellae in cross-section; b. Haversian canal and lamellae in longitudinal section; c. ground-lamellae of medullary canal with Volkmann's canals.

Fig. 3. *Osseous tissue.* Cross-section, femur dog H. P. Meth. II l 1 F.
a. Haversian canal; b. lacunae and canaliculi.

Fig. 4. *Dentine and enamel.* Longitudinal section, crown human tooth. L. P. Meth. II l, 1 F.
a. dentine; b. enamel.

Fig. 5. *Dentine with interglobular spaces.* Cross-section root human tooth. H. P. Meth. XII f, F.
a. cementum; b. interglobular spaces; c. dentinal canals.

VIII



Fig. 1.

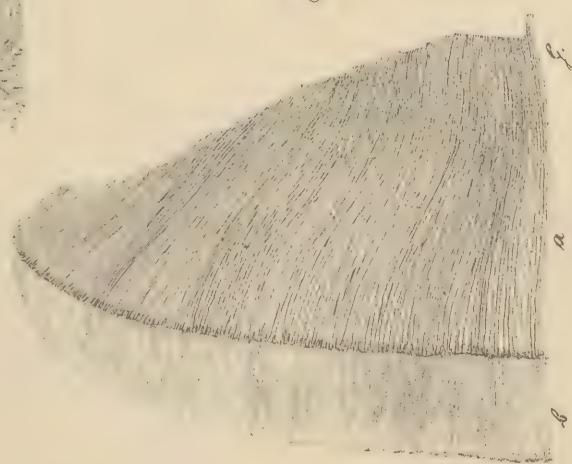


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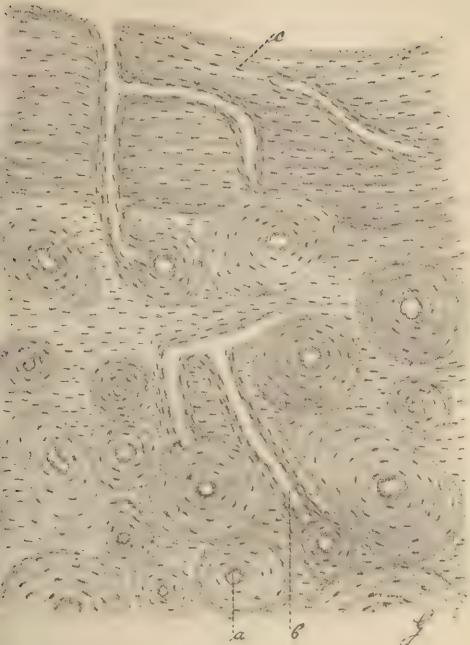


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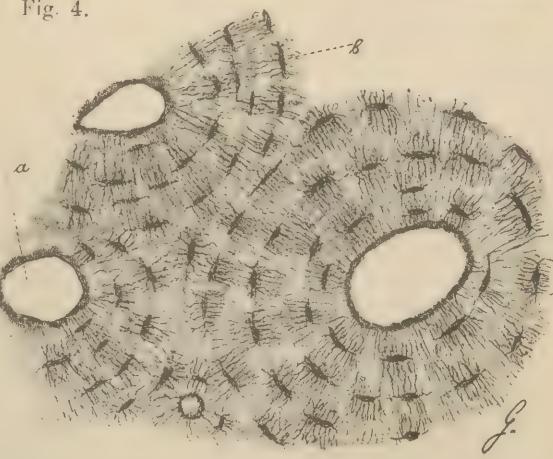


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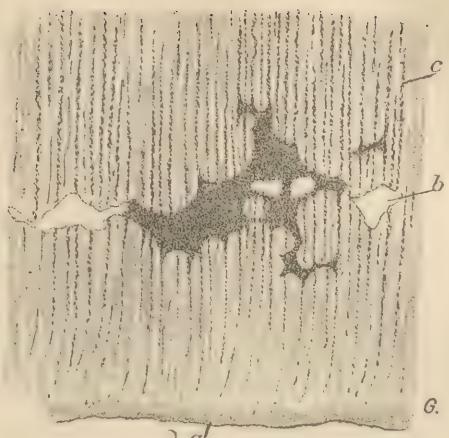


Fig. 5.

IX. DENTAL TISSUES AND TOOTH-FORMATION.

PLATE IX.

Dental tissue and tooth-formation.

Fig. 1. *Branching dentinal canals.* Section tooth, guinea pig. H. P. Meth. 12 f, F.

Fig. 2. *Isolated enamel prisms.* Enamel human tooth. H. P. Meth. Maceration in formic acid.

a. surface view; b. lateral view; c. enamel-membrane.

Fig. 3. *Dentification.* Longitudinal section tooth-sac new-born child. L. P. Meth. VII i 6 F.

a. pulp with blood-vessels; b. layer of odontoblasts; c. dentine; d. enamel; e. enamel-organ partly detached from enamel.

Fig. 4. *Enamel-germ* of developing tooth. Permanent tooth new-born child. H. P. Meth. VII i, 6 F.

a. inner layer enamel organ; b. outer part enamel organ.

Fig. 5. *Dentification.* Inner part of growing dentine, developing tooth. H. P. Meth. VII i 6, 7 F.

a. odontoblasts; b. processes of odontoblasts in dentinal canals.

IX

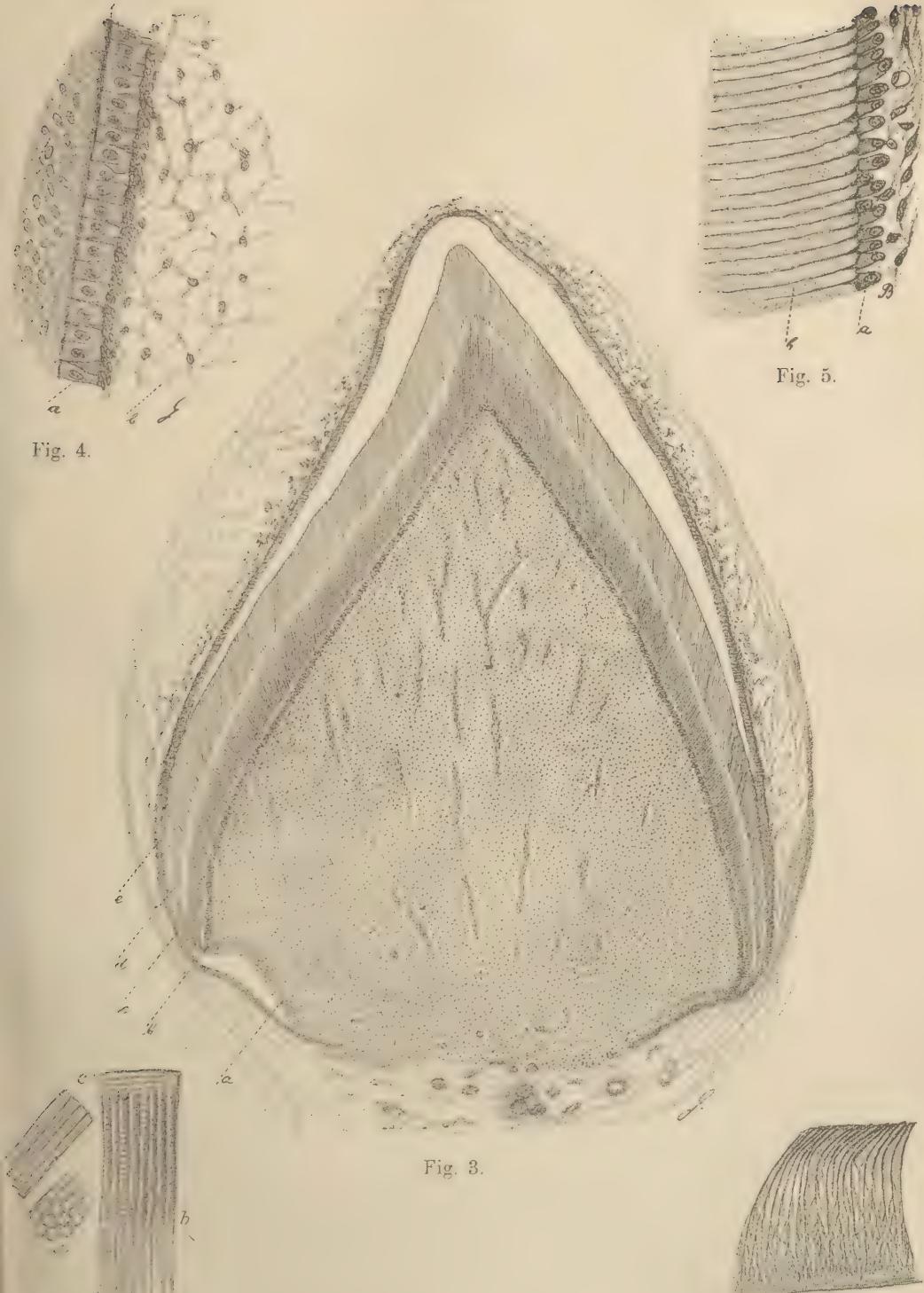


Fig. 5.

Fig. 4.

Fig. 3.

Fig. 2.

Fig. 1.

X. ***STRIATED MUSCLE.***

PLATE X.

Striated Muscle.

Fig. 1. *Striated muscle-fibre.* Leg-muscle turtle. H. P. Meth. IV c, 1 E.

Fig. 2. *Striated muscle-fibre.* Leg-muscle Hydrophilus. H. P. Meth. III c, 1 E.
q. transvere disc; n. lateral disc; z. middle disc.

Fig. 3. *Transverse—and longitudinal section of striated muscle.* Tongue, rabbit. H. P. Meth. III i 5, 7 F.

a. cross-section with sarcolemma, nuclei and Cohnheim's areas; b. longitudinal section;
c. perimysium.

Fig. 4. *Branching striated muscle:* Heart-muscle, rabbit. H. P. Meth. I c, 1 B.

Fig. 5. *Primitive fibrillæ of striated muscle.* Muscle, tail of cray-fish. H. P. Meth. XI c, 1 E.

Fig. 6. *Transverse fission of striated muscle.* Tail-muscle, lizard. H. P. Meth. 13, 5 c. E.

a. sarcolemma; b. Bowman's discs, side-view; c. Bowman's discs, surface-view.

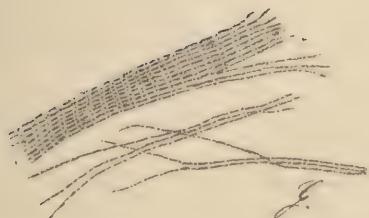


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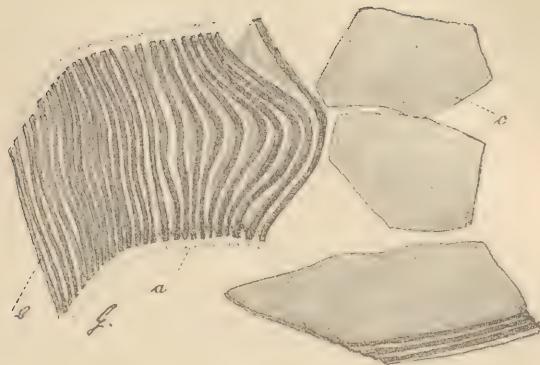


Fig. 6.



Fig. 1.



Fig. 2.

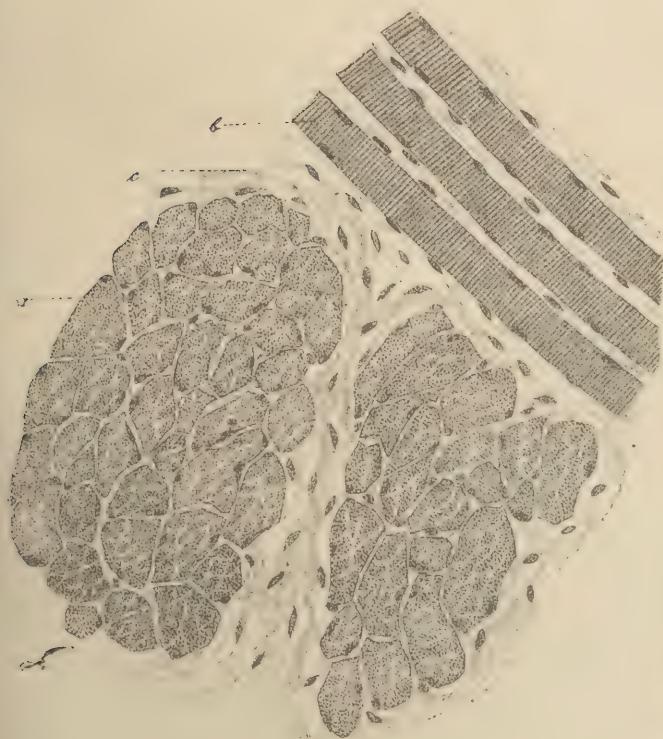


Fig. 3.



Fig. 4.

XI. STRIATED AND PLAIN MUSCLE.

PLATE XI.

Striated and plain muscle.

Fig. 1. *Branching striated muscle.* Tongue, frog. M. P. Meth. X c, 1 E.

Fig. 2. *Nuclei, sarcoglia, sarcolemma of striated muscle.* Red muscle, rabbit. H. P. Meth. I e, 1 C.

Fig. 3. *Cells of heart-muscle with Eberth's cement-lines,* sheep. H. P. Meth. III 2, c. E.

Fig. 4. *Nerve-distribution in muscle.* Sterno-cutaneous muscle, frog. H. P. Meth. I a, 1 B.

a. small nerve-trunk; b. striated muscle-fibres; c. places where the medullary fibres pass out of sight; d. muscle-fibre containing fat-granules; e. capillary.

Fig. 5. *Bundles of plain muscle.* Muscular layer, frog's bladder. H. P. Meth. I a, 5 F.

a. plain muscle-fibres; b. connective tissue corpuscles; c. nerve-fibre.

Fig. 6. *Plain muscle-fibres, isolated.* Muscular coat, frog's stomach. H. P. Meth. X c, 1 E.

Fig 7. Same. Meth. IX c, 1 D.

* Fibres with remnants of intercellular substance.

Fig. 8. *Plain muscle in cross-section.* Section of muscular coat of cat's intestine. H. P. Meth. III k 5, 7 F.

a. plain muscle; b. connective tissue; c. blood-vessel.



Fig. 1.

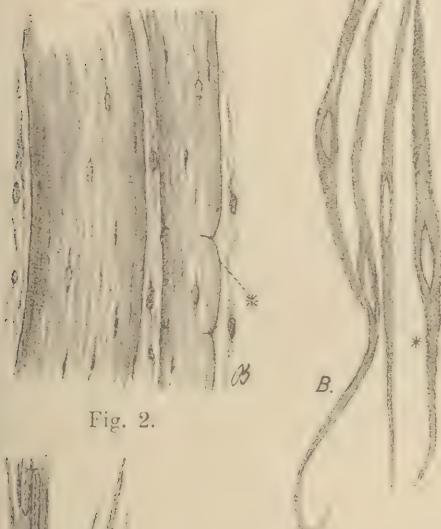


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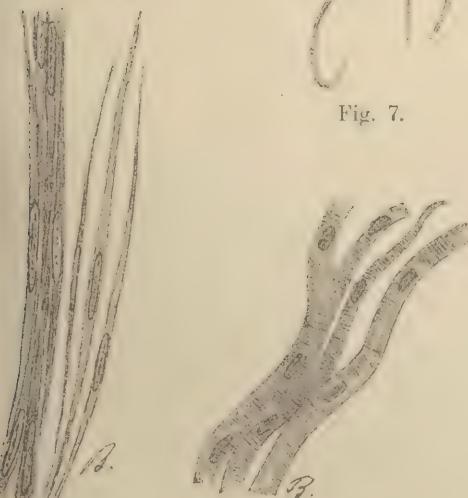


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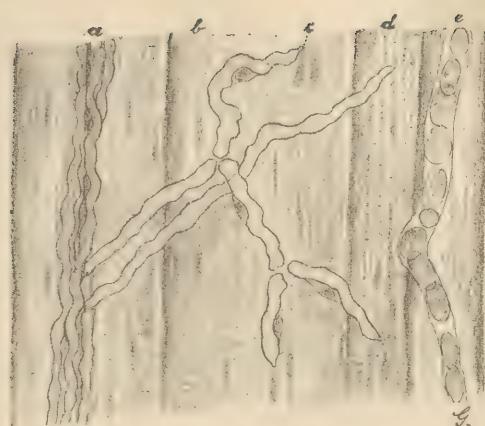


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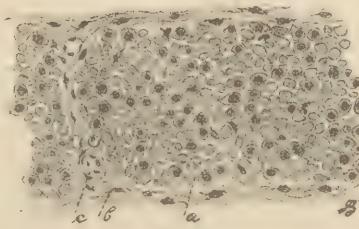


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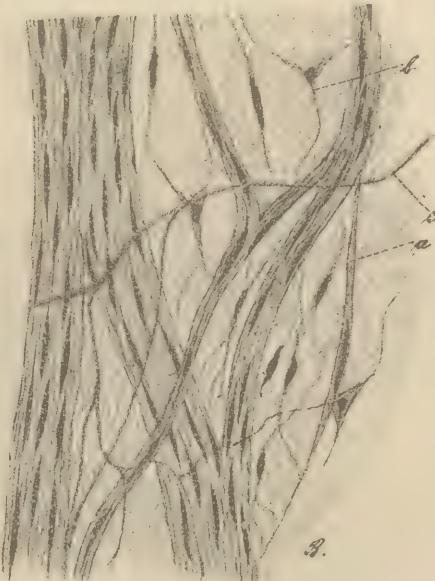


Fig. 6.

Fig. 5

XII. *GANGLION CELLS.*

PLATE XII.

Ganglion cells.

Fig. 1. *Multipolar ganglion cell*, isolated. Anterior horn spinal chord, rabbit. H. P. Meth. XIV c, 4 E.

a. axis-cylinder-process (Deiter's process); b. protoplasmic processes.

Fig. 2. *Spinal ganglion*, dog. H. P. Meth. VII f, 8 F.

a. pseudo-unipolar ganglion cell with capsule (sheath of Schwann); b. nerve-fibre, longitudinal section; * origin of nerve-fibre in ganglion-cell.

Fig. 3. *Sympathetic ganglion*. Gangliaed chord, man. H. P. Meth. V k 5, 7 F.

a. ganglion cell; b. connective tissue; c. nerve-fibres; * origin of nerve-fibre in a ganglion cell.

Fig. 4. *Sympathetic ganglion*. Auerbach's plexus, rabbit's intestine. H. P. Meth. VIII 12 a E.

Ganglion-cells and non-medullated nerve-fibres.

Fig. 5. *Sympathetic ganglion-cells*. Abdominal plexus, frog. H. P. Meth. 12 c E.

a. cells with spiral fibre; b. pseudo unipolar cells.

Fig. 6. *Sympathetic ganglion cells with double nucleus*. Ganglion coeliacum, rabbit. H. P. Meth. VII i, 6 F.

a. capsule (sheath of Schwann); b. axis-cylinder processes; c. granular substance of cell-body; d. homogeneous substance of cell-body; e. nuclei of cells.

Fig. 7. *Bipolar ganglion cells*. Spiral ganglion cochlea, dog. H. P. Meth. VI c, 1 E.

a. capsule; b. central process; c. peripheral process; d. cell-body; e. nucleus ganglion cell.

XII



Fig. 7.

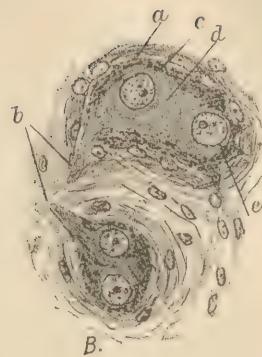


Fig. 6.

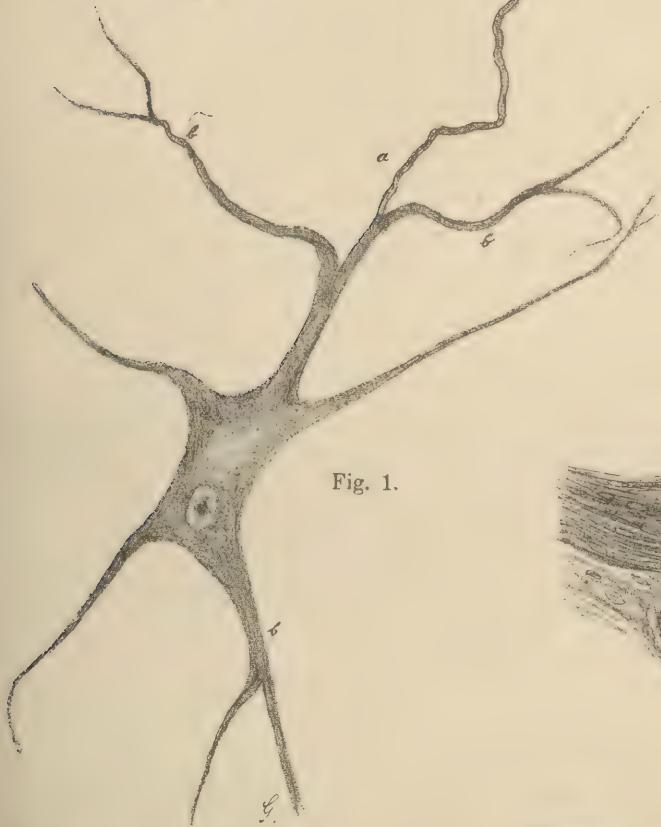


Fig. 1.



Fig. 5.



Fig. 3.

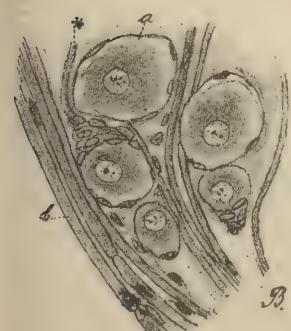


Fig. 2.



Fig. 4.

XIII. MEDULLATED NERVE-FIBRES.

PLATE XIII.

Medullated nerve-fibres.

Fig. 1. *Medullated nerve-fibres*, fresh. Sciatic of frog. H. P. Meth. I c, 1 B.

a. cerebrospinal fibres; b. sympathetic fibres; c. constriction of Ranvier; d. nucleus of sheath of Schwann; e. droplets of myeline; f. axis-cylinder; g. medullary sheath.

Fig. 2. *Medullated nerve-fibres* treated with osmic acid. H. P. Meth. XII c, 1 E.

a, b, c, d. as in Fig. 1.; e. Schmidt-Lantermann's incisures; f. axis-cylinder with fibrillae; g. medullary sheath.

Fig. 3. *Medullated nerve-fibres*, treated with 10 percent. nitric acid. H. P. Meth. VII c, 8 E.

e, f, g. as in Fig. 1. Network of neurokeratin in medullary sheath.

Fig. 4. *Medullary nerve-fibres* treated with silver nitrate. H. P. Meth. I c, 14 E.

e. cross of Ranvier; f. axis-cylinder with Frommann's cross-striations.

Fig. 5. *Cross-section of a medullated nerve*. H. P. Meth. XII k, 8 F.

f. axis-cylinder with fibrillae; g. medullary sheath.

Fig. 6. *Cross-section of a medullated nerve* after treatment with 10 percent. nitric acid. H. P. Meth. VII i, 8 F.

a. connective tissue sheath; f. axis-cylinder; g. medullary sheath with frame-work of neurokeratin.

Fig. 7. *Cross-section of a medullated nerve* after treatment with Mueller's fluid. H. P. Meth. IV k, 4-F.

a, f, g. as in Fig. 6.

Fig. 8. *Medullated fibres* of spinal cord. White substance spinal cord, rabbit. H. P. Meth. XII c, 1 E.

e. incisures of Schmidt-Lantermann; f. axis-cylinder; g. medullary sheath,

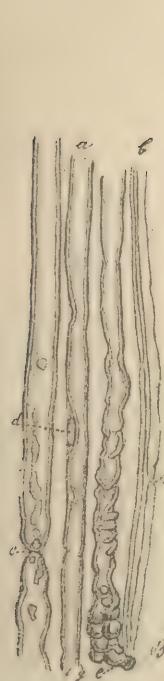


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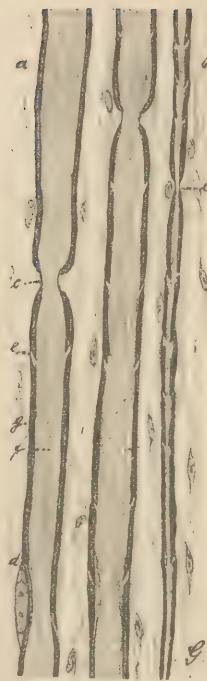


Fig. 2.



Fig. 3.

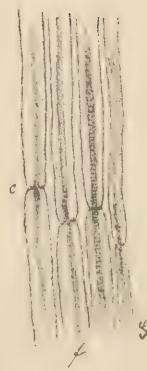


Fig. 4.

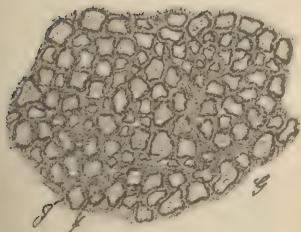


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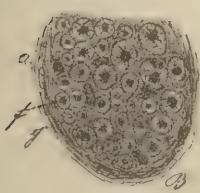


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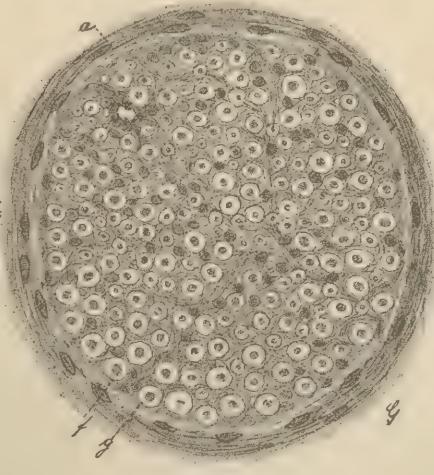


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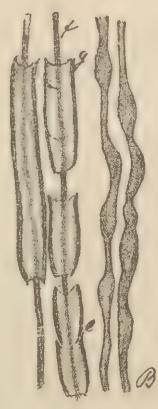


Fig. 8.

XIV. MOTOR AND SENSORY NERVE-ENDINGS.

PLATE XIV.

Motor and sensory nerve-endings.

Fig. 1. *Motor nerve-ending.* Frog's muscle. H. P. Meth. 11 a E.

a. medullated nerve-fibre; b. antler-like termination.

Fig. 2. *Motor nerve-ending.* Lizard's muscle. H. P. Meth. 11 a E.

a. medullated nerve; b. end-plate.

Fig. 3. *Sensory nerve-endings.* Cornea, rabbit. H. P. Meth. 12 h F.

a. substantia propria of cornea; b. Bowman's membrane; c. epithelium of cornea with free nerve-endings; d. deep plexus of nerves; e. sub-epithelial nerve-plexus.

Fig. 4. *Epithelial nerves, pig's nose.* H. P. Meth. 12 h F.

a. small nerve-trunk; b. cutaneous papilla; c. epithelial nerve.

Fig. 5. *Nerves supplying hairs of mons veneris, dog.* H. P. Meth. 12 f F.

a. small nerve-trunk; b. branching of the nerve in the hyaline layer, surface-view; c. nerve-endings.

Fig. 6. *Nerve-endings in root-sheath of a sinus-hair, dog's nose.* M. P. Meth. 12 f F.

a. venous sinus; b. hyaline membrane; c. outer root-sheath; d. small nerve-trunk; e. deep nerve-plexus with antler-like endings on the hyaline membrane; f. superficial plexus with epithelial nerves.

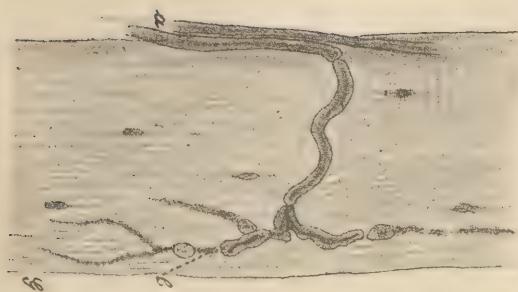


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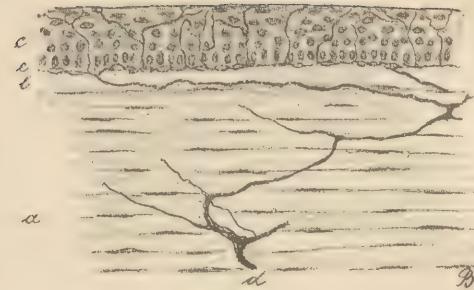


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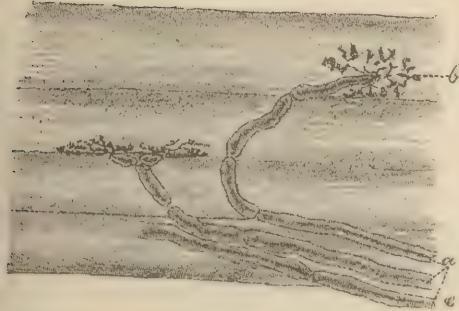


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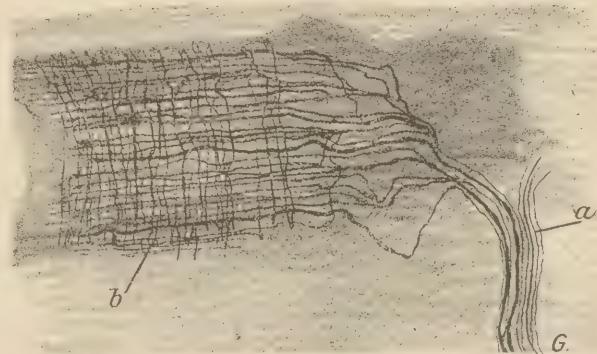


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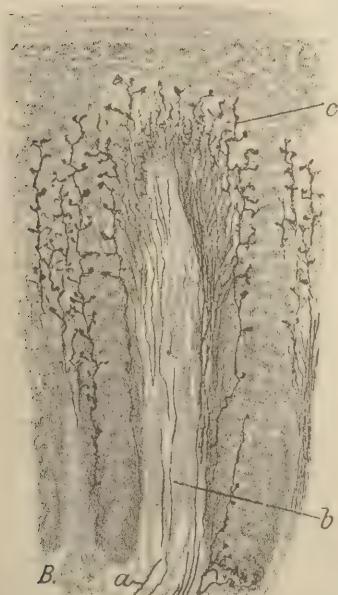


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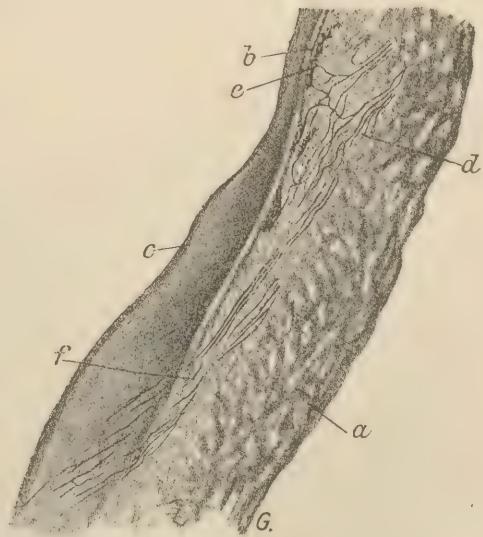


Fig. 6.

XV. SENSORY NERVE-ENDING.

PLATE XV.

Sensory Nerve-endings.

Fig. 1. *Pacinian corpuscle*. Mesentery of cat. H. P. Meth. VIII c 12 E

a. small bundle medullated nerves; b. end-corpuscles with axiscylinder with dichotomous branching.

Fig. 2. *Transverse section of Pacinian corpuscle*. Sole of foot of man. H. P. Meth. III i 5, 7 F.

a. connective tissue; b. outer lamellose sheath; c. central core; d. axiscylinder.

Fig. 3. *Meissner's touch-corpusele*. Finger tip of monkey. H. P. Meth. VIII d 12 E.

a. small nerve bundle; b. tactile papilla with end-corpusele and end-branching of the axis-cylinder; c. vascular papilla.

Fig. 4. D The same. M. P.

a. b. c. as in Fig. 3.

Fig. 5. *Genital corpuscles Simple cylindrical end-bulb*. Clitoris rabbit. H. P. Meth VIII. d 5 E.

Fig. 6. *Genital corpuscles Branched cylindrical end-bulb*. Clitoris rabbit. H. P. Meth. VIII. d 5 E.

Fig. 7. *Genital corpuscles Globular end-bulb*. Clitoris rabbit. H. P. Meth. VIII d 5 E.

a. medullated nerve-fibre; b. external sheath; c. central core; d. axis-cylinder.

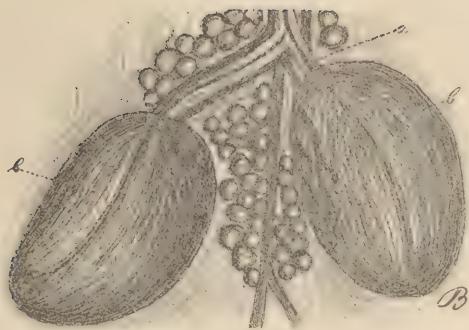


Fig. 1.



Fig. 4.

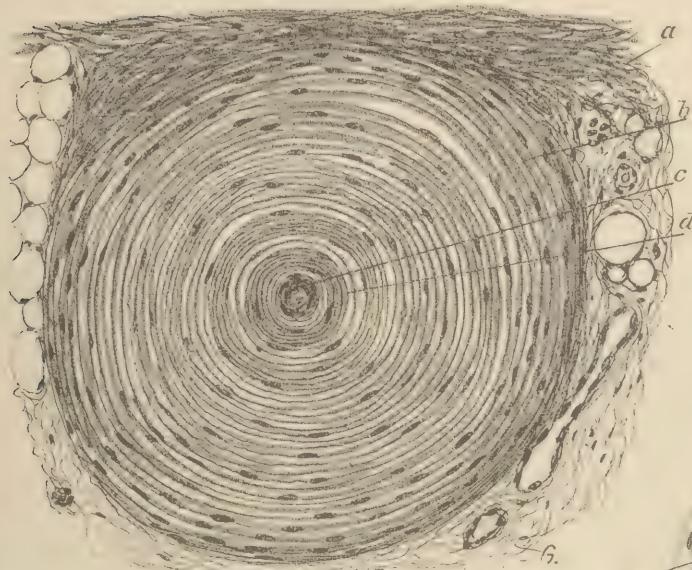


Fig. 2.



Fig. 3.

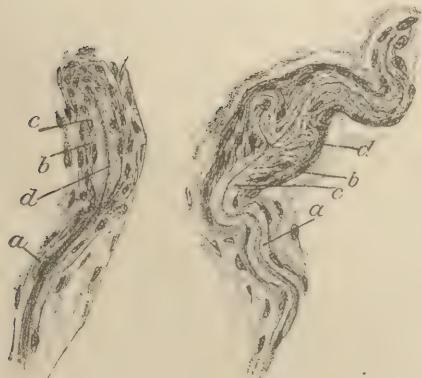


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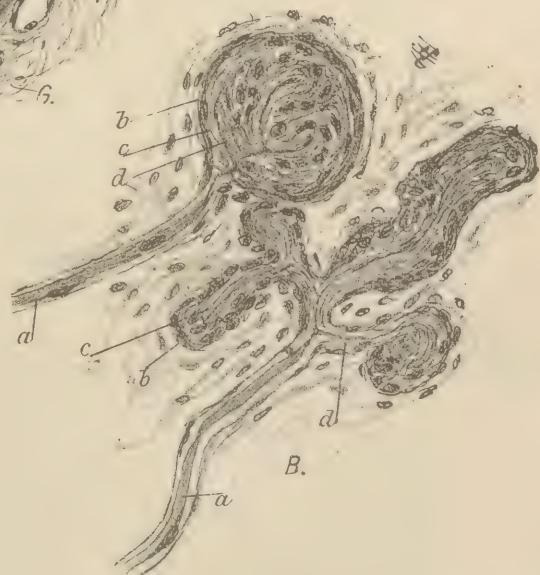


Fig. 6.

Fig. 7.

PLATE XVI.

Heart.

Fig. 1. *Wall of ventricle.* Heart, rabbit. H. P. Meth. IV *h*, 4 *F.*

a. endothelium; *b.* elastic layer of the endocardium; *c.* connective-tissue layer of the endocardium; *d.* chords of Purkinje; *e.* myocardium, cross-section of muscle-fibres; *f.* cross-section of artery.

Fig. 2. *Purkinje's cells.* Heart, sheep. H. P. Meth. XI *c*, 2 *E.*

a. cells of Purkinje; *b.* transitional forms; *c.* isolated muscle-cell.

Fig. 3. *Semilunar valve.* Ostium aortae, human. Section General survey. L. P. Meth. III *i* 5, 7 *F.*

A. aorta; *B.* ventricle; *C.* valve; *a.* endothelium; *b.* intima aortae; *c.* media aortae; *d.* adventitia; *e.* endocardium; *f.* longitudinal fibres; *g.* circular fibrous layer of the valve; *h.* tendinous ring of base of valve; *i.* myocardium, muscle fibres in longitudinal section; *k.* cross-section of muscle-fibre.

Fig. 4. *Semilunar valve.* Cross-section. H. P. Meth. as in Fig. 3.

a. endothelium; *b.* circular fibres; *c.* longitudinal fibre-bundles of the endocardial portion of valve; *d.* loose connective tissue with elastic fibres; *e.* cellular layer.



Fig. 1.

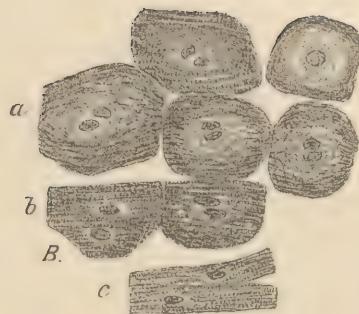


Fig. 2.



Fig. 4.

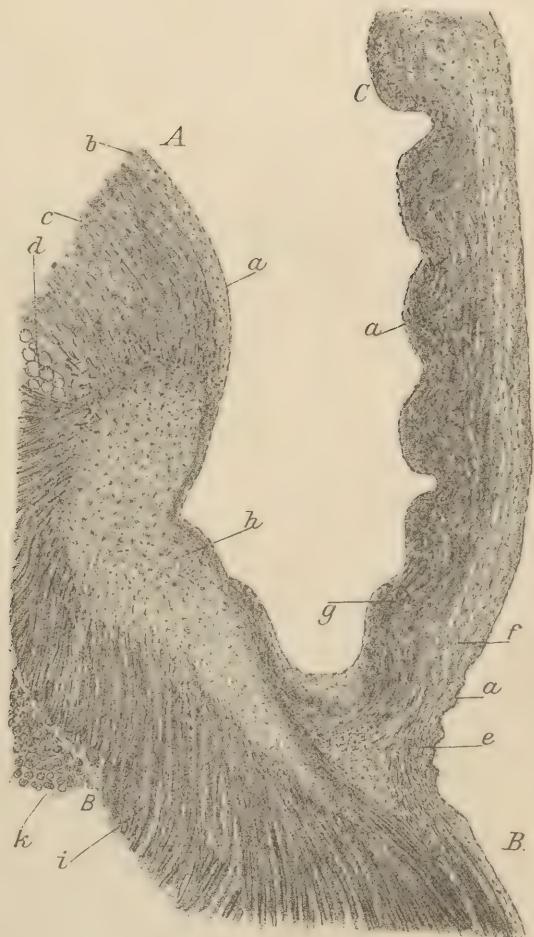


Fig. 3.

XVII. BLOOD-VESSELS

PLATE XVII.

Blood-vessels.

Fig. 1. *Wall of aorta*, human. Cross-section. H. P. Meth. III h 5, 7 F.

a. endothelium; b. inner layer of intima; c. external layer; d. membrana elastica interna; e. media; f. membrana elastica externa; g. adventitia.

Fig. 2. *Arteria cruralis*, monkey. Cross-section. M. P. Meth. III i 5, 7 F.

a. endothelium; b. intima; c. membrana elastica interna; d. media; e. adventitia.

Fig. 3. *Vena saphena*, monkey. Cross-section. M. P. Meth. III i 5, 7 F.

a. endothelium; b. intima; c. media; d. adventitia.

Fig. 4. *Blood-vessels from pia mater*, human. H. P. Meth. IV c, 4 E.

a. small artery; b. muscle nuclei of media, surface-view; c. muscle-nuclei, lateral view; d. nuclei of adventitia; e. smallest artery; f. smallest vein; g. capillary.

Fig. 5. *Endothelium of small vein* of frog's mesentery after treatment with nitrate of silver. H. P. Meth. Injection of one percent. silver nitrate solution, a 1 E.

Fig. 6. *Endothelium of small artery* of frog's mesentery after treatment with nitrate of silver. H. P. Meth. as in Fig. 5,

XVII

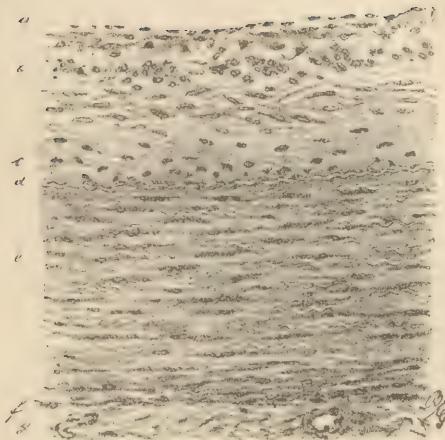


Fig. 1.



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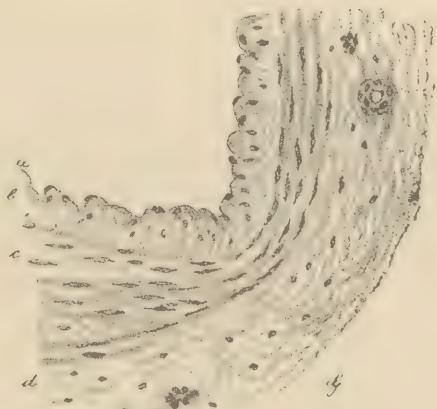


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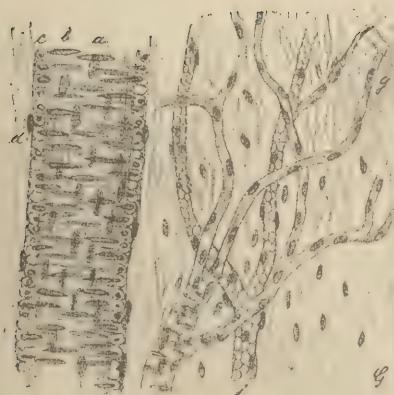


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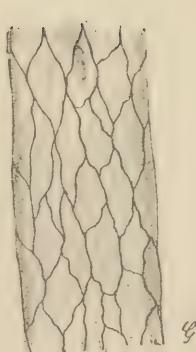


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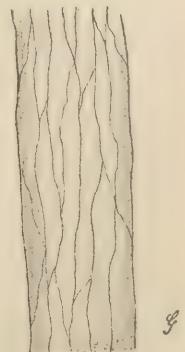


Fig. 6.

XVIII. LYMPHATIC GLANDS, THYMUS, GLAND, SPLEEN.

PLATE XVIII.

Lymphatic glands, Thymus, gland, Spleen.

Fig. 1. *Lymphatic gland of dog.* Section. L. P. Meth. V i 5, 7 F.

- a. connective tissue capsule; b. blood-vessels; c. germinal layer of cortical substance; d. chord-like germinal layer of medullary substance; e. lymph-sinus of medullary substance; f. trabecula with blood-vessels.

Fig. 2. From the edge of a *lymph nodule of tonsil.* Dog. H. P. Meth. VII i 6 F.

- a. connective tissue of mucosa; b. lymphatic vessel with lymph-corpuscles; c. blood-vessel; d. strands of cells of germinal layer; e. cells of germinating center; f. kargo-kinesis (Diaster) form germinating node.

Fig. 3. *Thymus gland* of new-born child. Section M. P. Meth. III i 5, 7 F.

- a. interlobular connective tissue with fat-cells and blood-vessels; b. outer layer of lobule, rich in cells; c. Hassal's stratified corpuscles; d. central blood-vessels of lobule.

Fig. 4. *Spleen of ox.* Isolated elements. H. P. Meth. I c 1 B.

- a. lymph-corpuscle; b. lymph-corpuscles with granules; c. endothelial cell, surface view; d. endothelial cell (candate corpuscle) lateral view; e. red corpuscle; f. blood placques.

Fig. 5. *Injected pig's spleen.* Section. L. P. Meth. Carmine injection, III i 5 F.

- a. capsule; b. pulp; c. veins of pulp; d. Malpighian corpuscle; e. artery; f. trabeculum.

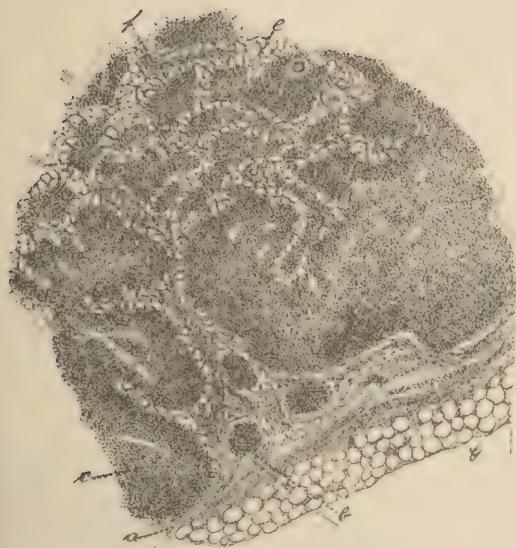


Fig. 1.



Fig. 2.

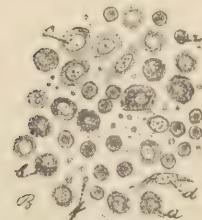


Fig. 4.



Fig. 3.



Fig. 5.

XIX. GLANDS WITH UNKNOWN FUNCTIONS.

PLATE XIX.

Glands with unknown functions.

Fig. 1. *Supra-renal body*, human. General survey. L. P. Meth III i 5, 7 F.

a. connective tissue capsule; b. Zona glomerulosa; c. Zona fasciculata; d. Zona reticularis; e. medullary substance; f. cross-section of vein.

Fig. 2. *Supra-renal body*, new-born child: Pars reticularis. H. P. Meth. VII i, 6 F.

a. strands of cells passing into pars fasciculata; b. strands of cells of pars reticularis; c. strands of cells passing into medullary substance; d. cross-sections of blood-vessels.

Fig. 3. *Pineal gland*, human. Section. H. P. Meth. IV f, 1 E.

a. connective tissue; b. epithelial alveoli; c. brain sand.

Fig. 4. *Hypophysis cerebri*, human. M. P. Meth. III g 5, 4 F.

a. nervous layer; b. adenoid layer; c. connective tissue capsule; d. blood-vessel.

*

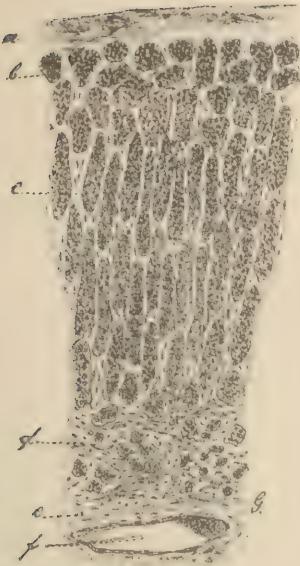


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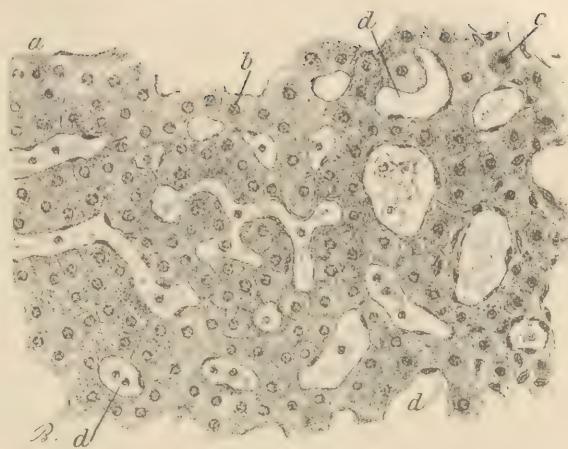


Fig. 2.

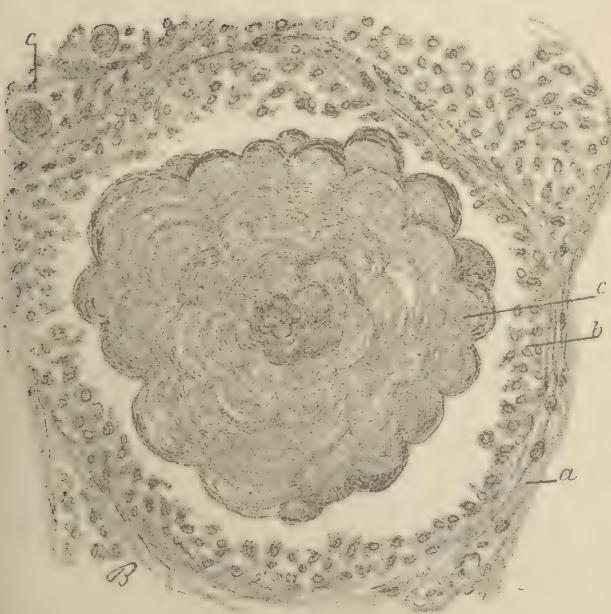


Fig. 3.

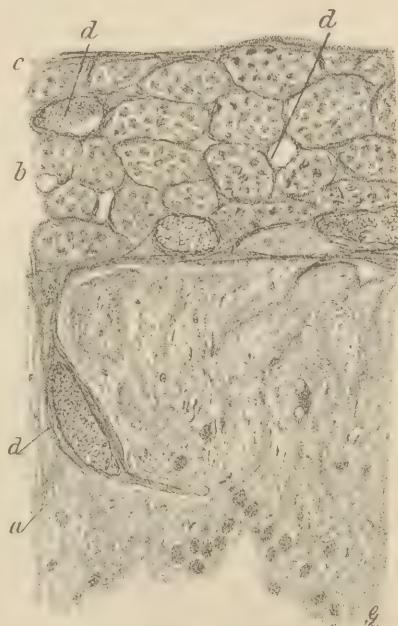


Fig. 4.

PLATE XX.

Skin.

Fig. 1. *Skin* from human finger, section. L. P. Meth. III i 5, 4 F.

a. stratum comeum; b. stratum granulosum; c. rete Malpighi of epidermis; d. excretory duct of sweat-gland; e. sweat gland; f. touch-corpuscle; g. small nerve-trunk, cross-section; h. Pacinian corpuscle, cross-section; i. blood-vessels.

Fig. 2. *Human scalp*, section. L. P. Meth. III i 5, 7 F.

a. epidermis; b. corium; c. subcutaneous adipose tissue; d. longitudinal section, including papilla, shaft, root-sheaths; d' diagonal section of hair; d'' transverse section of hair (Janugo); e. arrector pili; f. sebaceous gland; g. sweat-gland with duct; h. sweat-gland.

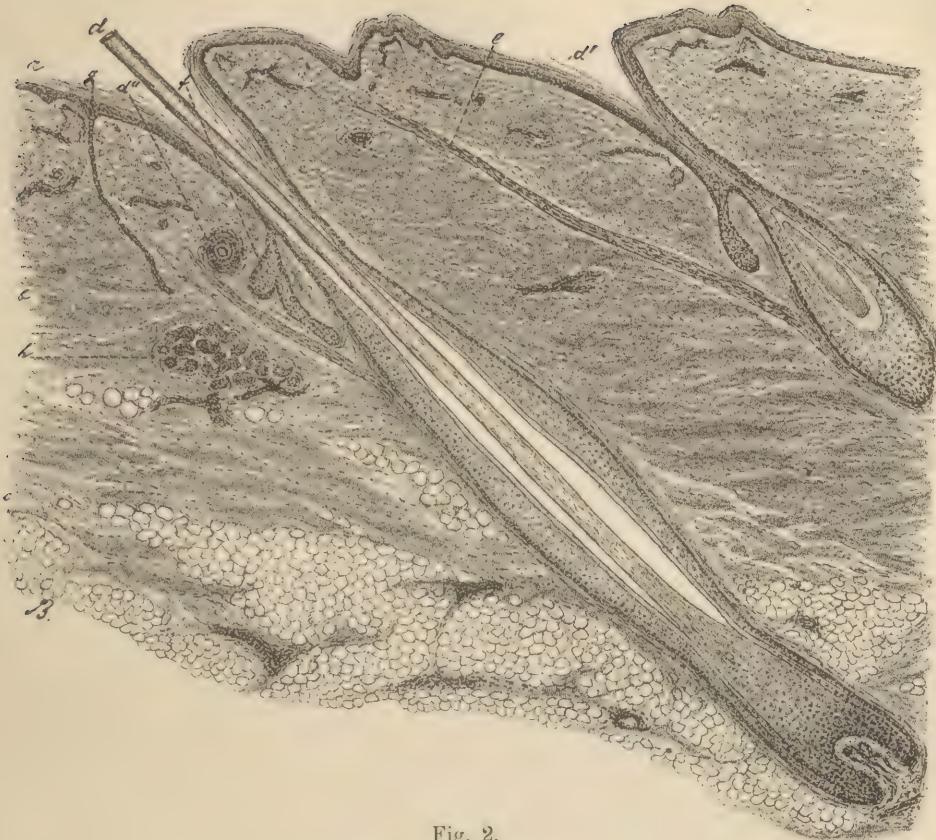


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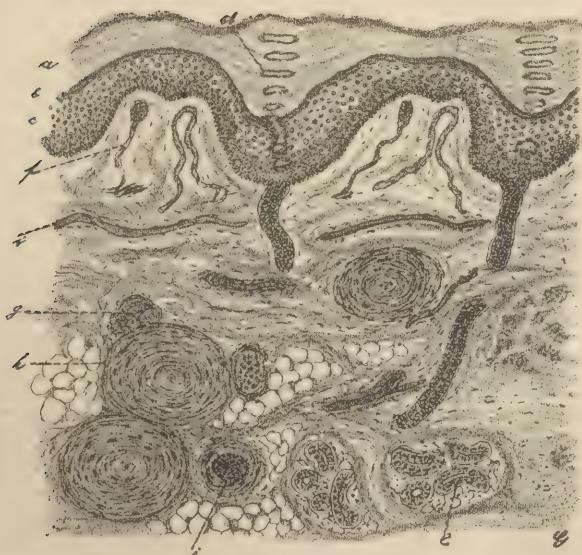


Fig. 1.

PLATE XXI.

SKIN.

Fig. 1. *Upper eyelid*, human. General view. L. P. Meth. III i 5, 7 F.

- A. External surface of lid; B. wall of lid, touching lower lid; C. conjunctiva. a. epidermis; b. columnar epithelium; c. lanugo with sebaceous glands; d. eye-lashes with sebaceous glands; e. sebaceous gland of hair of eye-lashes; f. gland of Meibom; g. musculus ciliaris; h. musculus orbicularis palpebrarum.

Fig. 2. *Edge of lip*, human. Cross-section; general view. L. P. Meth. III i 5, 7 F.

- A. Mucous membrane; B. external surface; a. stratified pavement epithelium; b. mucous gland; c. sebaceous gland without lanugo-hair; d. lanugo-hair with sebaceous gland; e. musculus orbicularis; f. branched muscle-fibres of corium and mucous membrane.

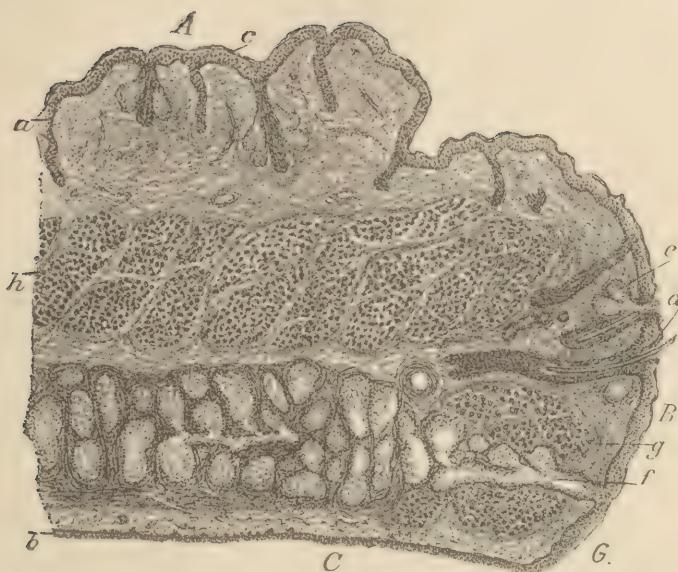


Fig. 1.



Fig. 2.

PLATE XXII.

Skin.

Fig. 1. *Skin of finger*, human. Cross-section. H. P. Meth. VII i, 6 F.

a. stratum cylindricum; b. stratum spinosum; c. stratum granulosum; d. stratum pelucidum; e. stratum corneum of epidermis; f. corium.

Fig. 2. *Skin from abdomen of negro*, section. H. P. Meth. III i, 3 F.

a. stratum cylindricum with deposits of pigments; b. stratum spinosum; c. stratum corneum; d. corium; e. migratory cells with pigment.

Fig. 3. *Epidermis of finger*, seen from below. M. P. Meth. VIII a, 5 F.

a. deep longitudinal ridges; b. shallow longitudinal ridges; c. ducts of sweat-glands; d. impressions from papillae.

Fig. 4. *Nail*, human, cross-section. L. P. Meth. III h 5, 7 F.

a. nail; b. epidermis of bed of nail; c. corium.

Fig. 5. *Groove of nail-bed*, human. Longitudinal section. L. P. Meth. III h 5, 7 F.

a, b, c. as in Fig. 4.

Fig. 6. *Lanugo-hair*. Longitudinal section. M. P. Meth. III i 5, 7 F.

a. epidermis; b. external root-sheath; c. lateral epithelial proliferations (glandular structures); d. end-proliferation (hair-germ); e. hair-root; f. papilla; g. hair-sac.



Fig. 1.



Fig. 2.

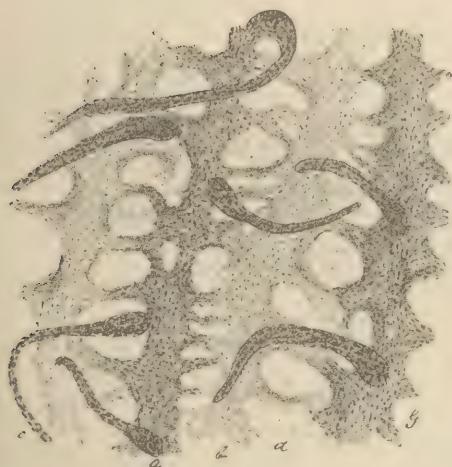


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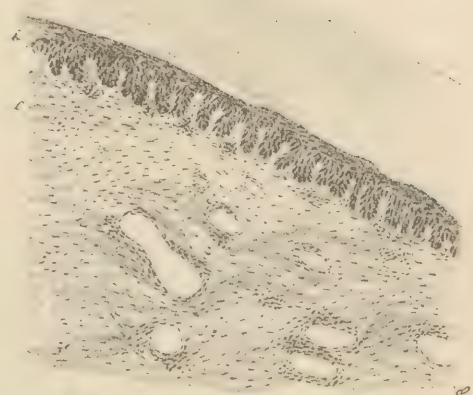


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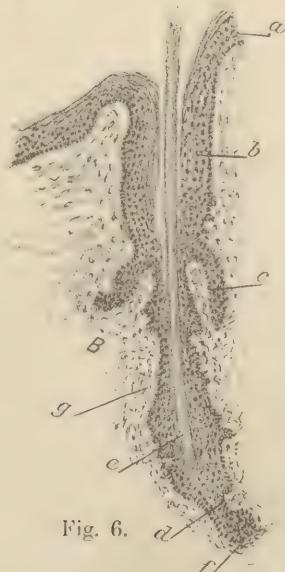


Fig. 6.



Fig. 5.

PLATE XXIII.

Hair.

Fig. 1. *Cross-section of hair.* H. P. Meth. III i 5, 7 F.

a. hair; b. cuticle of hair; c. internal root sheath; c.¹ cuticle of root sheath; c.² Huxley's layer of internal root-sheath; d. external root-sheath; e. hair follicle; f. hair-papilla.

Fig. 2. *Upper portion of hair-bulb, cross-section,* H. P. Meth. III i 5, 7 F.

a, b, c, c¹, c², d, e, f, as in Fig. 1.

Fig. 3. *Lower part of hair-bulb, cross-section.* H. P. Meth. III i 5, 7 F.

a, b, c, c¹, c², d, e, f, as in Fig. 1.

Fig. 4. *Root of hair, longitudinal section.* H. P. Meth. III i 5, 7 F.

a, b, c, c¹, c², d, e, f, as in Fig. 1.

Fig. 5. *Human hair, surface view.* H. P. Meth. I a 1 A.

Fig. 6. *Human hair in optical longitudinal section.* H. P. Meth. I a 1 B.

a. medullary substance; b. cortical substance; c. cuticula.

Fig. 7. *Human hair after treatment with sulphuric acid.* H. P.

a. medullary substance; b. cortical substance; c. breaking up along edge into fibres.

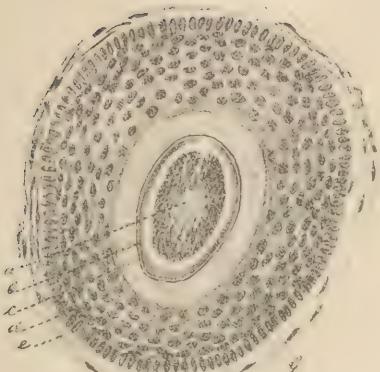


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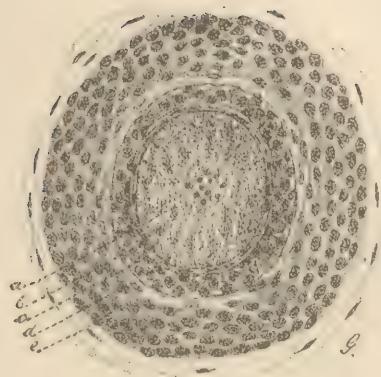


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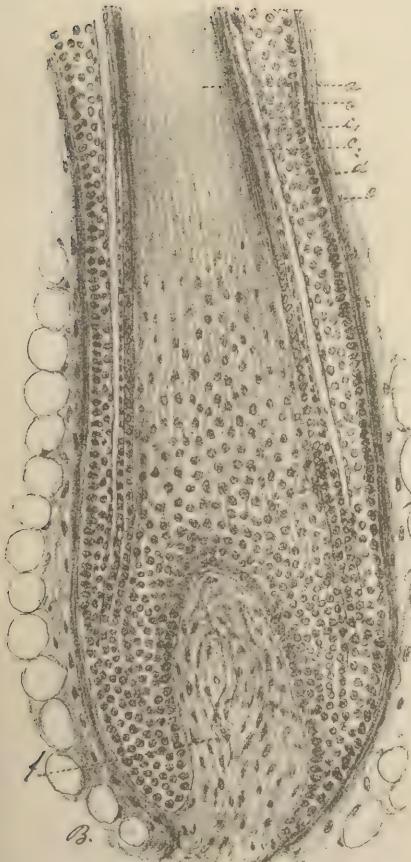


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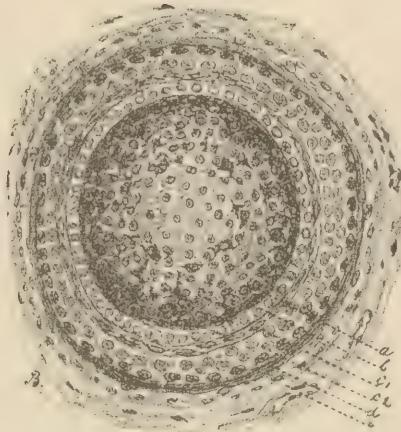


Fig. 3.



Fig. 5.



Fig. 6.

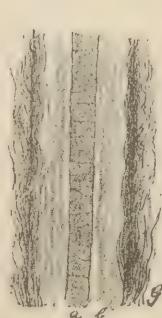


Fig. 7.

PLATE XXIV.

Skin.

Fig. 1. *Skin praeputium*, man. L. P. Meth. III i 5, 7 F.

a. epidermis; b. cutis; c. bundles of plain muscle of cutis in longitudinal and cross-section; d. vein.

Fig. 2. *Skin from axilla*, man. General view. L. P. Meth III i 5, 7 F.

a. epidermis; b. cutis; c. hair; d. sebaceous gland; e. opening of duct of convoluted gland; f. convoluted gland.

Fig. 3. *Meatus auditorius externus*. Section. General view. L. P. Meth III i 6, 7 F.

a. epidermis; b. cutis. c. subcutaneous tissue; * lanugo-hair with sebaceous gland; and duct of convoluted gland; g. cross-section of hair; h. convoluted glands (cerumen-glands.)

Fig. 4. *Sebaceous-gland*. Meatus auditorius, man. H. P. Meth. III i 5, 7 F.

a. epidermis of hair-follicle; b. germinating layer of sebaceous gland; c. sebaceous cells in stage of beginning fatty metamorphosis; d. particles of sebaceous material.



Fig. 2.

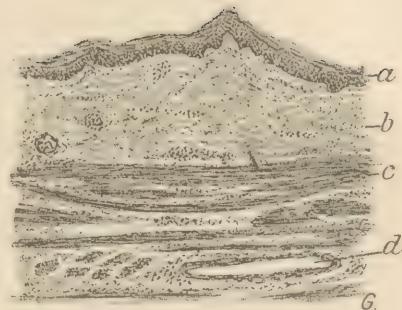


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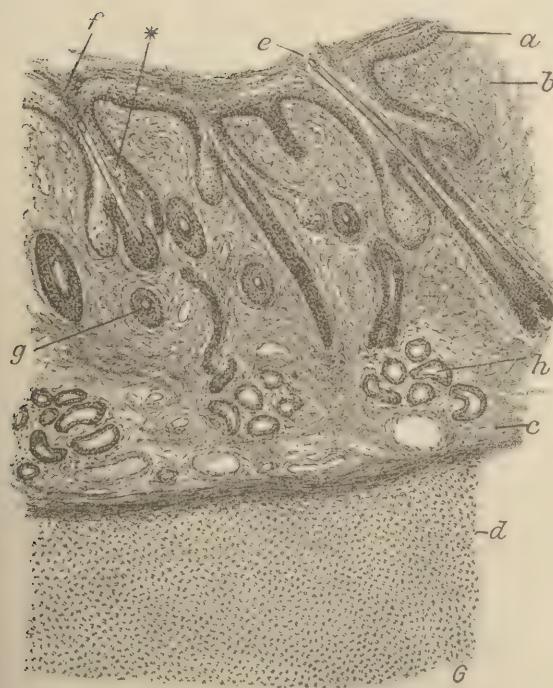


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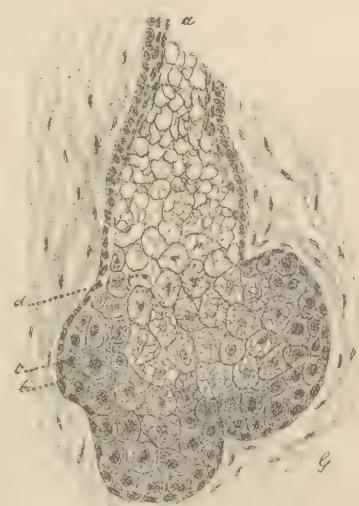


Fig. 4.

XXV. CONVOLUTED GLANDS OF SKIN.

PLATE XXV.

Convolute glands of skin.

Fig. 1. *Resting milk-gland*, human female 29 aet. H. P. Meth. IV i, 6 F.

a. larger excretory duct; b. smaller excretory duct; c. glandular alveoli; d. surface epithelium; e. epithelial muscle-layer.

Fig. 2. *Milk-gland in state of activity*, human. H. P. Meth. III i 5, 7 F.

a. smaller milk-duct with colostrum-cells; b. cross-section of glandular alveolus; c. tangential section of glandular alveolus.

Fig. 3. *Nursing mammary gland* of bitch. H. P. Meth. VII, XII i, 3 F.

Fig. 4. *Sweat-gland*. Skin finger, man. H. P. Meth. III i 5, 7 F.

a. excretory duct; b. cross-section of excretory duct; c. diagonal section of duct.

Fig. 5. *Ceruminous gland*, monkey. H. P. Meth. VII i, 6 F.

a. excretory duct; b. excretory duct passing into gland-duct; c. cross-section of glandular duct; d. tangential section of glandular-duct.

Fig. 6. *Axillary gland*, man. H. P. Meth. III i 5, 7 F.

a. excretory duct; b. cross-section of glandular duct; c. tangential section of glandular duct,

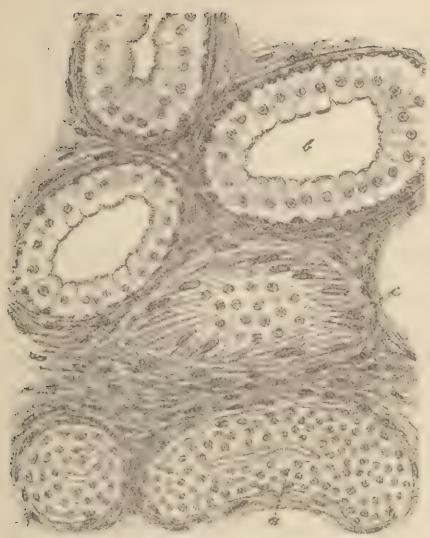


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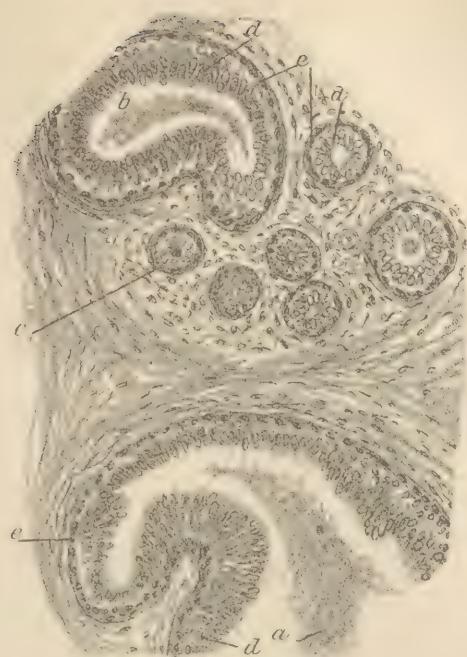


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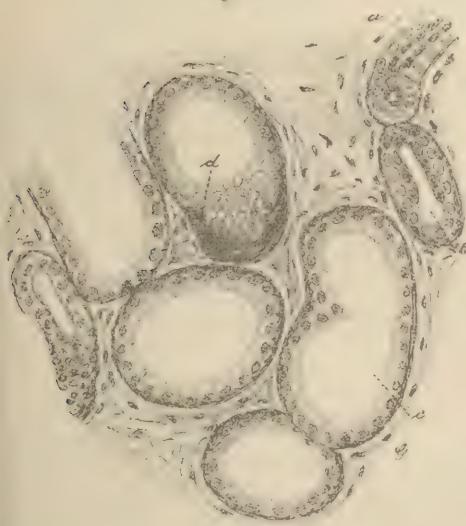


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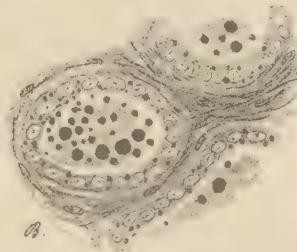


Fig. 3.



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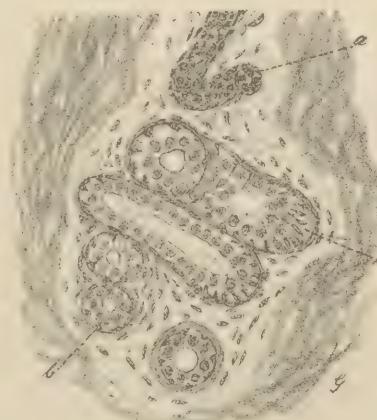


Fig. 4.

PLATE XXVI.

Tongue.

Fig. 1. *Tongue*, anterior region, man. Cross-section. L. P. Meth. III i 5, 7 F.

a. papillae filiformes; b. mucous membrane; c. muscular layer.

Fig. 2. *Papillae filiformes* of rabbits tongue, after removal of epithelium. L. P. Meth. III i 5, 7 F.

Fig. 3. *Papilla foliata* of rabbit. L. P. Meth. III i 5, 7 F.

a. ridges; b. furrows; c. taste-bud; d. excretory duct of gland; e. nerve-branchings in mucous membrane; f. serous gland; g. blood-vessels; h. muscle fibres.

Fig. 4. *Furrow of papilla foliata*, rabbit. H. P. Meth. III i 5, 7 F.

a. taste-bud; b. stratified pavement epithelium; c. mucosa with sections of nerves.

Fig. 5. *Papilla circumvallata*, monkey. L. P. Meth. i 6 F.

a. papilla; b. circular furrow; c. region of taste-buds; d. mucous membrane with mucous-glands; e. layer of muscular tissue.

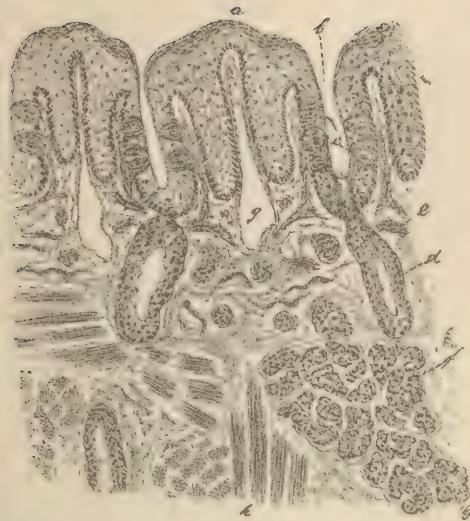


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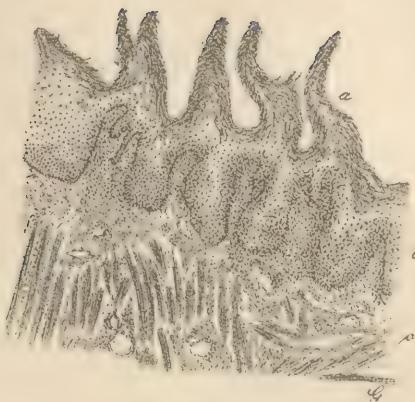


Fig. 1.



B.

Fig. 2.

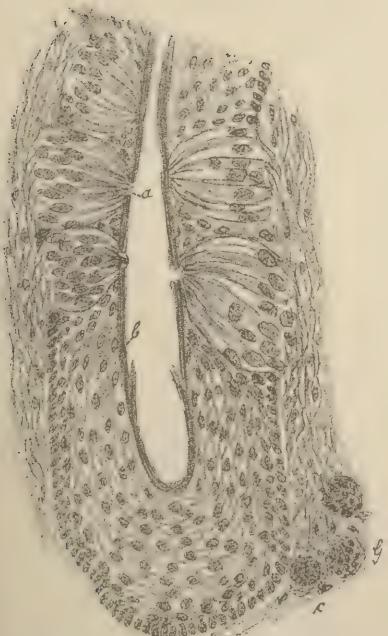
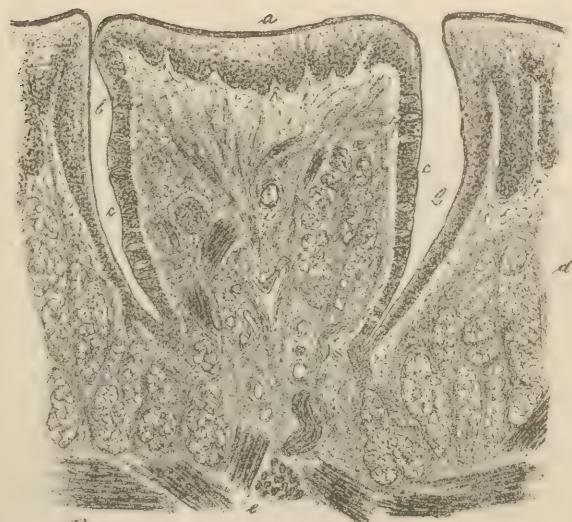


Fig. 4.



B.

Fig. 5.

XXVII. OESOPHAGUS; GLANDS OF MOUTH.

PLATE XXVII.

Oesophagus; Glands of mouth.

Fig. 1. *Oesophagus* human; cross-section. L. P. Meth. III i 5, 7 F.

- a. epithelium;
- b. mucous membrane;
- c. plain muscle, longitudinal fibres, cross-section;
- d. plain muscle, circular fibre, longitudinal section;
- e. striated muscle, longitudinal section;
- f. striated muscle, cross-section.

Fig. 2. *Follicle of pharyngeal tonsil*, human. Section M. P. Meth. III i 5, 7 F.

- a. stratified pavement-epithelium, the superficial layers in process of desquamation, in numerous places emigrated white blood corpuscles;
- b. lymphadenoid germinating layer.

Fig. 3 *Parotis*, human. H. P. Meth. VII i 6 F.

- a. a larger excretory duct;
- b. salivary channels;
- c. glandular alveolus.

Fig. 4. *Submaxillaris*, dog H. P. Meth. V h 5, 7 F.

- a. salivary canal;
- b. glandular alveolus with secreting cells;
- c. demilunes of Gianuzzi.

Fig. 5. *Mucous gland* of human tongue. H. P. Meth. III i 5, 7 F.

- a. excretory duct;
- p. distal end of gland-ducts passing into alveolus;
- c. alveolus with muciparous cells.

Fig. 6. *Serous gland* of papilla foliata of rabbit's tongue. H. P. Meth. III i 5, 7 F.

- a. excretory duct;
- p. distal portion of duct;
- c. alveolus.

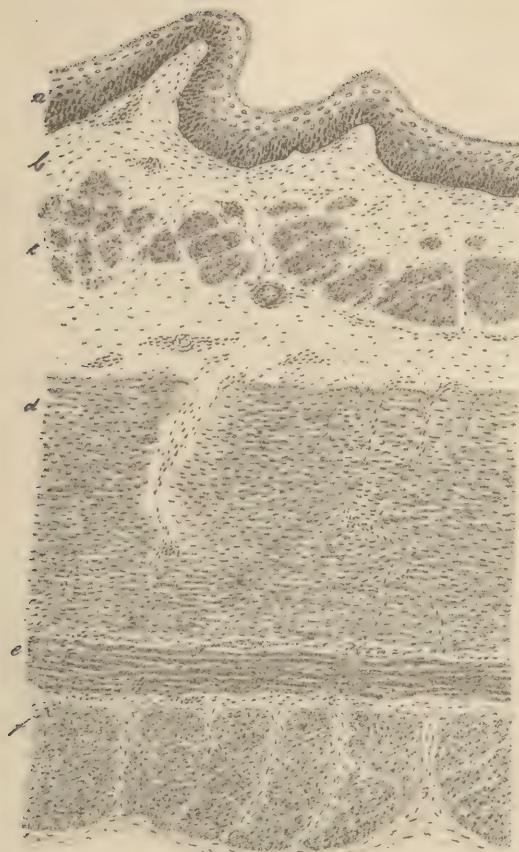


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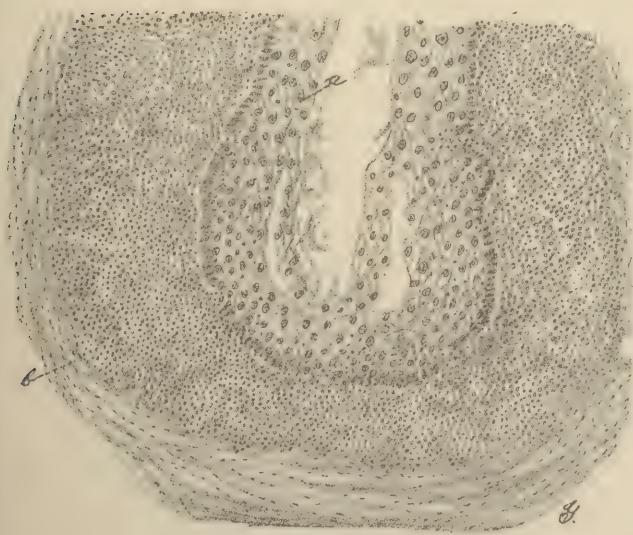


Fig. 2.



Fig. 3.

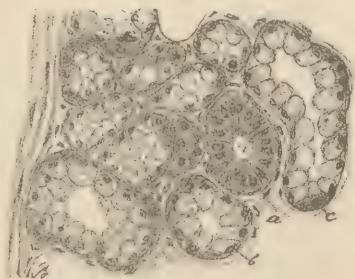


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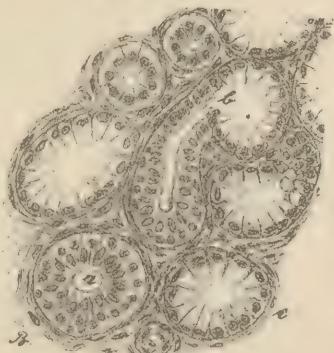


Fig. 5.



Fig. 6.

PLATE XXVIII.

Stomach.

Fig. 1. Wall of *stomach, fundus*, dog. L. P. Meth. V h 5, 7 F.

a. serosa; b. longitudinal muscle-bundles; c. ganglion of Auerbach's plexus; d. oblique muscle-bundles; e. circular muscle-bundles; f. submucosa; g. muscularis mucosae; h. lymph-nodes of mucosa; i. glands of fundus; k. columnar epithelium.

Fig. 2. *Mucous membrane of fundus*, dog. M. P. Meth. V h 5, 7 F.

a. columnar epithelium of surface; b. funnel-shaped mouths of glands; c. neck of glands; d. fundus of gland; longitudinal section; e. fundus of gland, cross-section. f. lymph-node of mucosa; g. connective tissue of mucosa; h. muscularis mucosae.

Fig. 3. *Gland from fundus of dog's stomach* H. P. Meth. V h 5, 7 F.

a. columnar epithelium; b. neck of gland; c. fundus; d. cover (peptic) cells; chief (mucous) cells.

Fig. 4. *Mucous membrane of pylorus*, human. M. P. Meth. III h 5, 7 F.

a. columnar epithelium; b. neck of gland; c. fundus gland; d. muscularis mucosae.

XXVIII

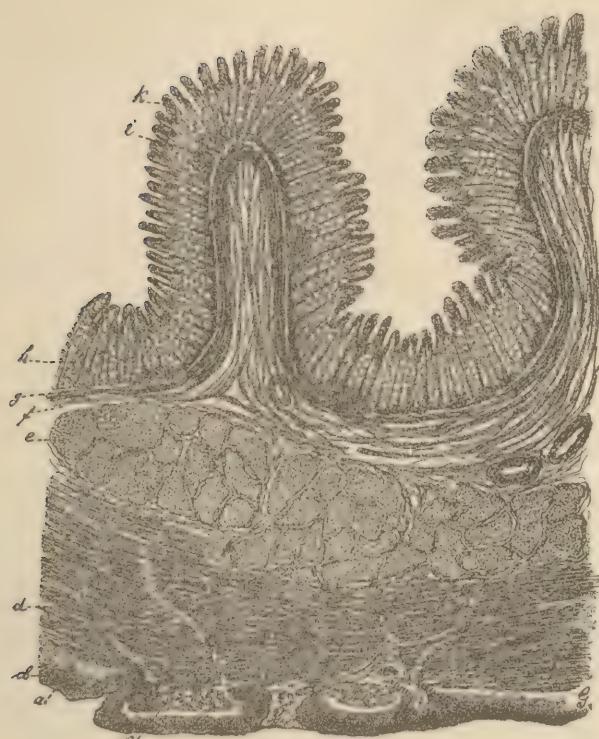


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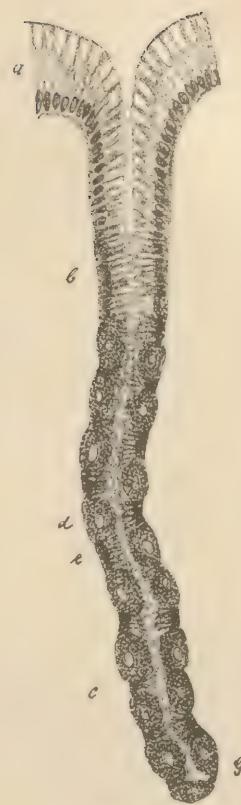


Fig. 3.

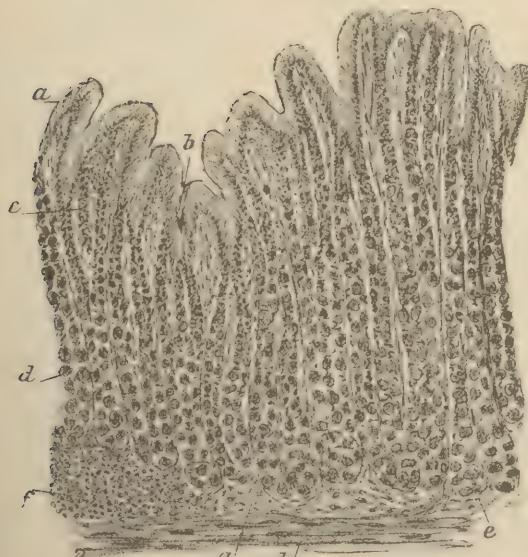


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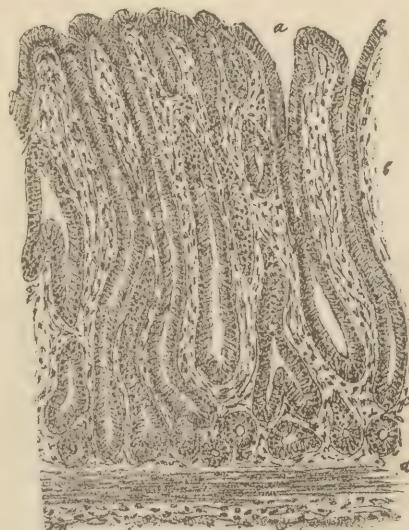


Fig. 4.

PLATE XXIX.

Intestine.

Fig. 1. *Duodenum*, dog. L. P. Meth. V i 5, 7 F.

a. villi; b. mucous membrane; c. Lieberkuehn's follicles; d. duct of Brunner's gland; e. Bruner's glands; f. muscularis mucosae; g. muscularis.

Fig. 2. *Ileum*, cat. L. P. Meth. Carmin-injection. III i 5 F.

a. villi; b. surface of mucous membrane; c. mucosa with Lieberkuehn's follicles; d. muscularis mucosae; e. submucosa; f. ganglion of Meissner's plexus; g. layer of circular muscle; h. ganglion of Auerbach's plexus; i. layer of longitudinal muscle; k. serosa.

Fig. 3. *Mucous membrane ileum*, cat. H. P. Meth. carmine injection of arteries III i, 5 F.

a. epithelium; b. mucosa; c. mouth of a Lieberkuehn's follicle; d. muscularis mucosae.

Fig. 4. *Tip of an intestinal villus* of cat's intestine. H. P. Meth. III i 5, 7 F.

a. columnar epithelium with tectorial seam,—(striated cuticula); b. mucosa; c. beaker-cells.

Fig. 5. *Intestine during fat-absorption*, frog. H. P. Meth. VI k, 3 F.

a. tectorial membrane; breaking up into rods; b. body of cell with fat-droplets; c. beaker-cells; d. lymph-cells with fat-droplets; e. blood-vessel.

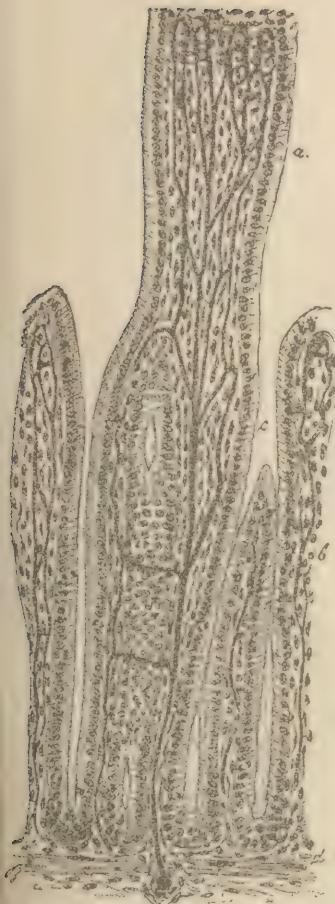


Fig. 3.



Fig. 4.



Fig. 1.

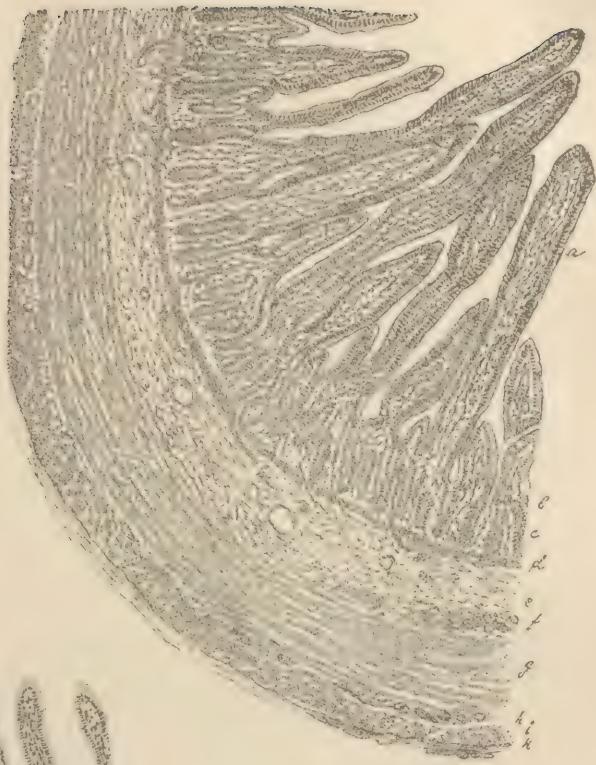


Fig. 2.



Fig. 5.

PLATE XXX.

Intestine.

Fig. 1. *Mucous membrane of rectum*, human, with solitary follicle. M. P. Meth. VII *a* 6 *F.*

a. submucosa; *b.* muscle-bundles of mucosa; *c.* germinating layer; *d.* germinating center; *e.* mucosa; *f.* Lieberkuehn's gland; *g.* surface epithelium.

Fig. 2. *Processus vermiciformis*, rabbit. L. P. Meth. Carmine-injection III *i* 5 *F.*

a. epithelium; *b.* Lieberkuehn's gland; *c.* recesses of mucous membrane; *d.* lymph-node; *e.* submucosa.

Fig. 3. *Auerbach's plexus*, guinea pig's intestine. L. P. Meth. III *a* 12 *E.*
a. ganglion; *b.* sympathetic fibres.

Fig. 3. *Meissner's plexus*, submucosa intestine guinea-pig (duodenum) L. P. Meth. VIII *a* 12 *E.*

a. ganglion; *b.* sympathetic fibres; *c.* bloodvessels; in left lower corner part of Brunner's gland.



Fig. 1.

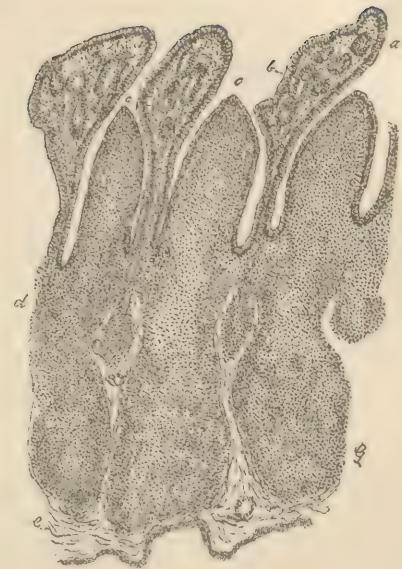


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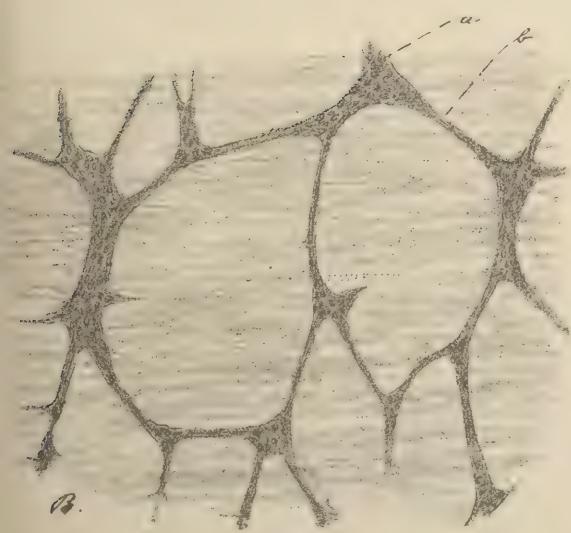


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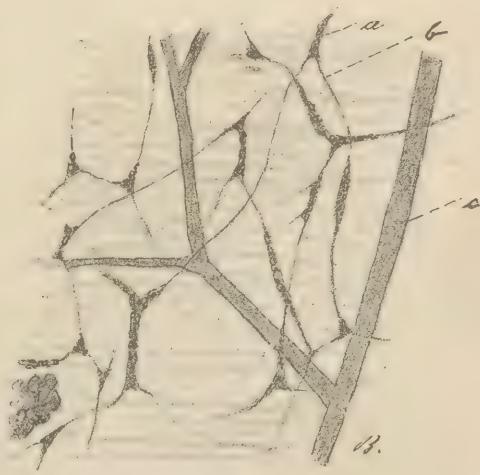


Fig. 4.

PLATE XXXI.

Liver.

Fig. 1. *Liver*, rabbit. General view. L. P. Meth. III i 5, 7 F.

a. capsule of Glisson; b. transverse section of a superficial hepatic vein; c. longitudinal section of superficial hepatic vein; d. transverse section of deep hepatic vein; e. portal vein; f. hepatic artery; g. bile-duct * longitudinal section of hepatic lobule.

Fig. 2. *Hepatic tissue*, man. H. P. Meth. III h 5, 7 F.

a. portal vein; b. hepatic artery; c. bile-ducts; d. capillaries (blood); e. liver-cells.

Fig. 3. *Bloodvessels of liver*, rabbit. H. P. Meth. Carmine injection III i 5 F.

a. portal vein; b. hepatic vein; c. bile-duct; at a a longitudinal section of lobule; at b a cross-section of lobule.

Fig. 4. *Bile-capillaries of dog's liver*. M. P. Meth. 16 f. F.

a. larger bile-duct in interstitial tissue; b. bile-capillaries; c. blood-vessels.

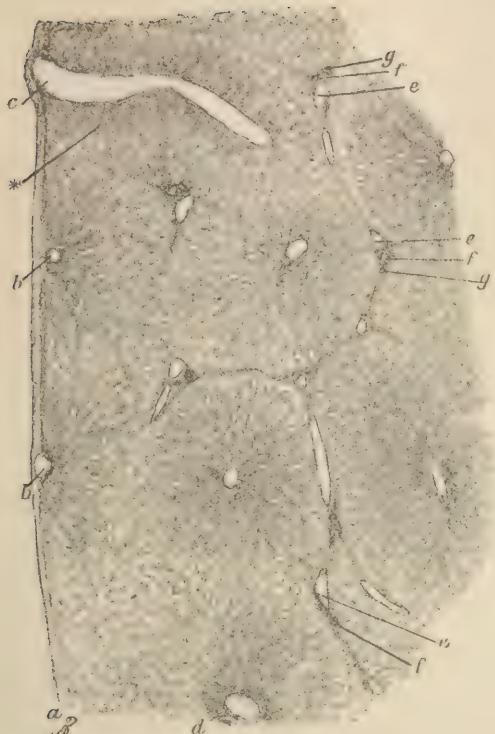


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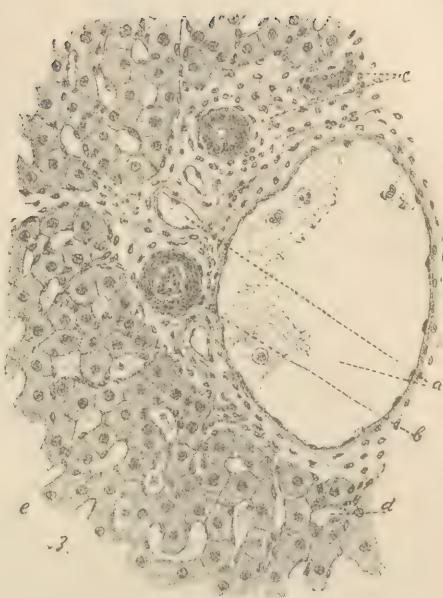


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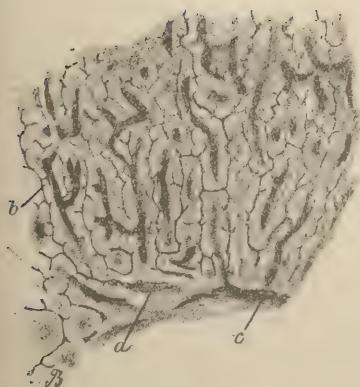


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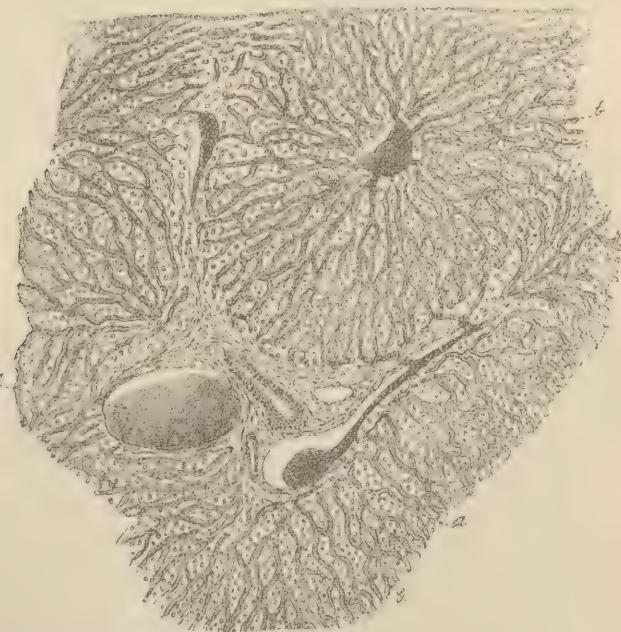


Fig. 3.

XXXII. LIVER AND PANCREAS

PLATE XXXII.

Liver and Pancreas.

Fig. 1. Injection of blood-vessels and bile ducts of liver. H. P. Meth. Injection of Prussian-blue from the bile-duct. V k, 3 F.

a. liver-cells with bile-capillaries; b. blood-capillaries.

Fig. 2. Ductus choledochus, dog. Cross-section. M. P. Meth. VII i, 3 F.

a. superficial columnar epithelium; b. recessus; c. gland; d. mucosa; e. muscularis.

Fig. 3. Wall of gall-bladder, dog. H. P. Meth. V i 5, 7 F.

a. columnar epithelium, single layer; b. mucosa.

Fig. 4. Lobule of pancreas; new-born child, general view. L. P. Meth. III i 5, 7 F.

a. cross-section of a main branch of pancreatic duct; b. smaller branches; c. lobules of gland; d. interstitial connective tissue; e. blood-vessels.

Fig. 5. Pancreas, dog. H. P. Meth. V h 5, 7 F.

a. glandular alveolus; b. duct.

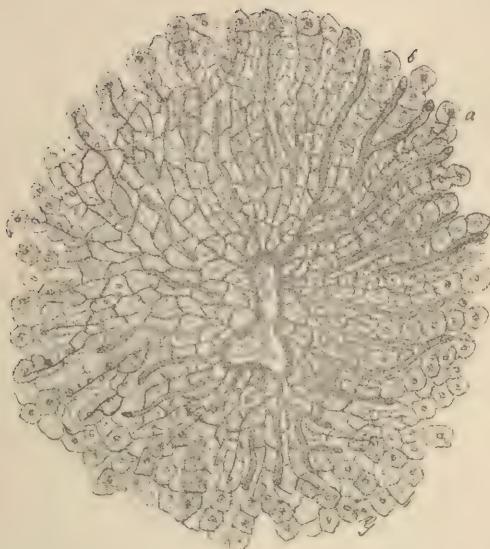


Fig. 1.



Fig. 2.

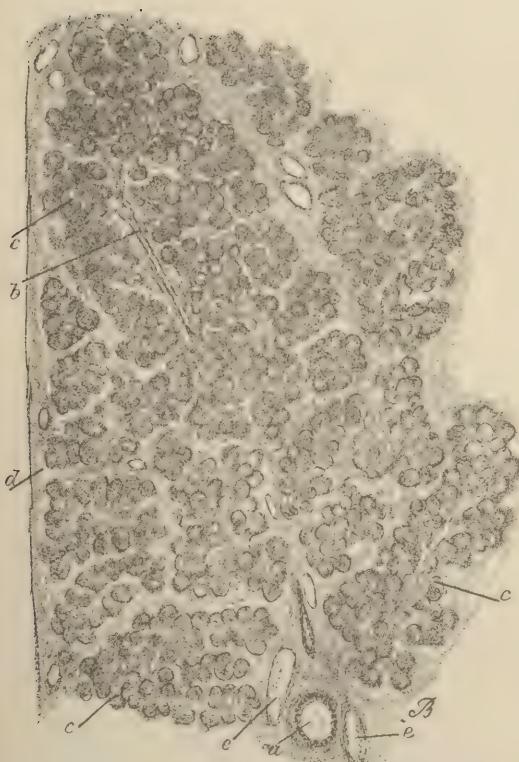


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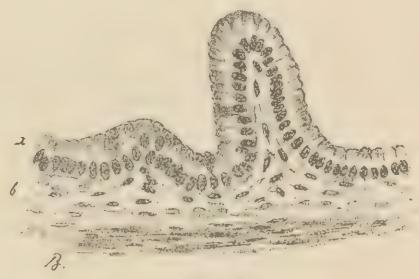


Fig. 3.



Fig. 5.

XXXIII. LARYNX, TRACHEA, BRONCHUS.

PLATE XXXIII.

Larynx, Trachea, Bronchus.

Fig. 1. *True vocal chord*, monkey. Frontal cross-section. M. P. Meth. III i 5, 7 F.

a. ciliated columnar epithelium of pocket of Morgagni and wall of larynx; b. two layers of pavement epithelium of upper surface of vocal chord; c. stratified pavement epithelium of lower surface of vocal chord; d. free edge of vocal chord; e. mucosa.

Fig. 2. *Trachea*, child. Cross-section. General view of region where cartilaginous portion and posterior wall join. M. P. Meth. III i 5, 7 F. —

a. stratified columnar epithelium, covered with cilia; b. opening of mucous gland; c. ducts of mucous gland, longitudinal section; d. excretory duct, cross-section; e. lobules of mucous gland; f. basement-membrane; g. mucosa; h. cartilage; i. plain muscle-fibres; k. adipose tissue.

Fig. 3. *Epithelium from anterior part of trachea*. H. P. Meth. III i 5, 7 F.

a. ciliated columnar cells; b. beaker cells.

Fig. 4. *Epithelium from posterior part of trachea*. H. P. Meth. III i 5, 7 F.

a. ciliated columnar cells; b. beaker cells.

Fig. 5. *Root of lung*, 7 months human foetus. L. P. Meth. V i 5, 7 F.

a. pulmonary vein; b. bronchus; c. pulmonary artery; d. columnar epithelium of bronchus; e. mucous gland; f. bronchial cartilage; g. lymph-node.

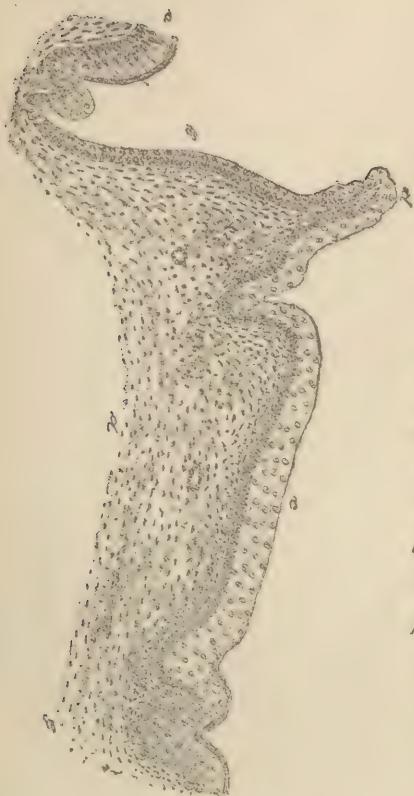


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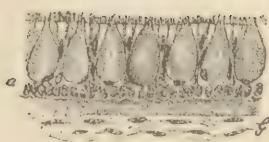


Fig. 3.

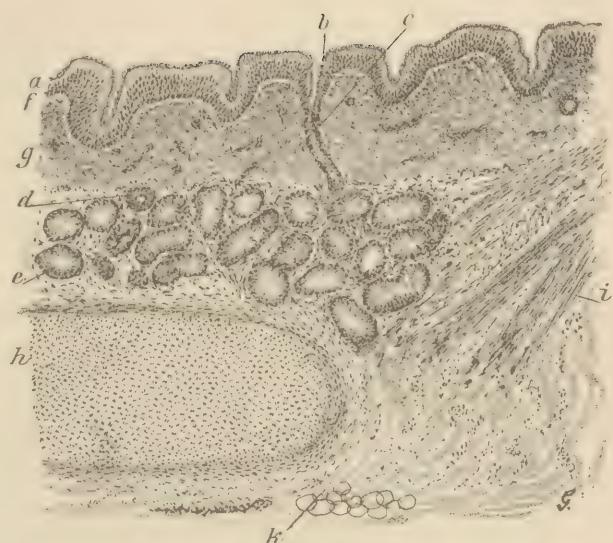


Fig. 2.



Fig. 4.

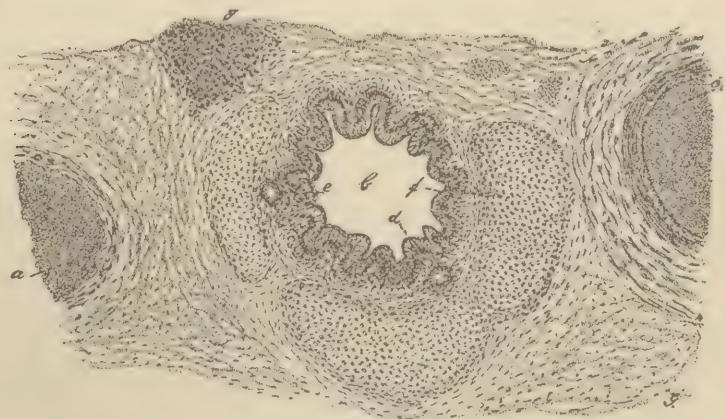


Fig. 5.

XXXIV. LUNG, THYROID GLAND.

PLATE XXXIV.

Lung, Thyroid gland.

Fig. 1. Lung, five months human foetus. H. P. Meth. VII i 5, 7 F.

a. pleura; b. interstitial connective tissue; c. alveolus; d. small bronchus.

Fig. 2. Blood-supply of lung. Injection of pulmonary artery of rabbit's lung. L. P. Meth. Injection with Prussian blue. IV i 5, 7 F.

a. cross-section; surface view of wall of alveolus.

Fig. 3. Pulmonary tissue, dog. H. P. Meth. I d, 1 B.

a. cross-section of alveolus; b. surface view, with elastic fibres.

Fig. 4. Lobules of calf's lung, general view. L. P. Meth. IV i 5, 7 F.

a. pleura; b. interstitial connective tissue; c. branch of pulmonary artery; d. bronchus interlobularis; e. walls of alveoli; f. intundibula; g. alveoli.

Fig. 5. Thyroid gland, human, adult. H. P. Meth. VII h 3 F. Alveoli lined with cubical epithelium, partly filled with colloid substance.

Fig. 6. Thyroid gland, new-born child. H. P. Meth. III i 5, 7 F.

a. Sections of alveoli partly empty, partly filled with colloid substance; b. interstitial connective tissue.

XXXIV

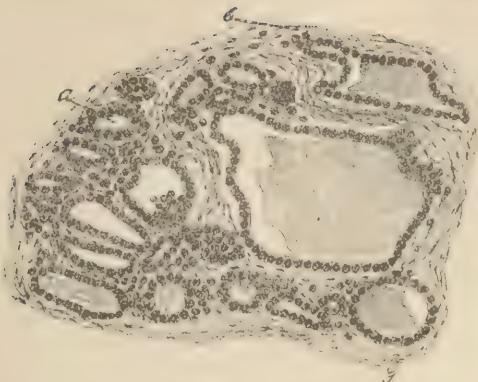


Fig. 6.



Fig. 4.

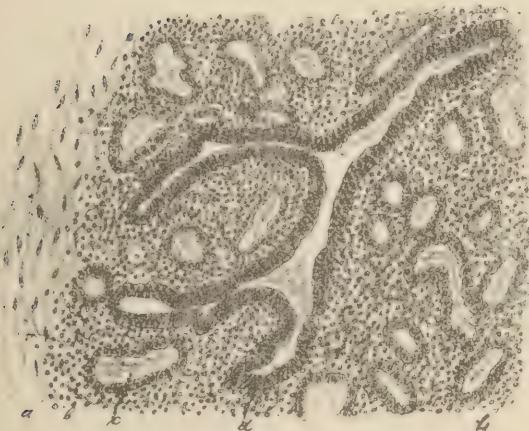


Fig. 1.

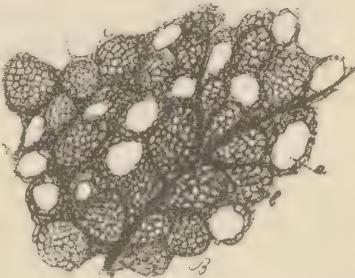


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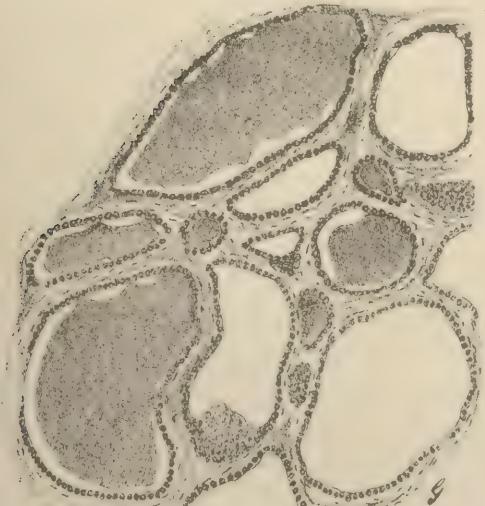


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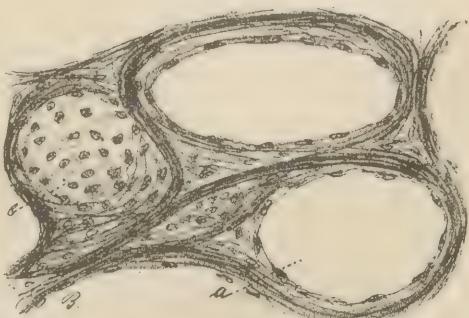


Fig. 3.

PLATE XXXV.

Kidney.

Fig. 1. *Renal pyramid*, monkey. General view. L. P. Meth. III i 5, 7 F.

A. cortical substance; *B.* medullary substance; *a.* main branch of renal artery; *b.* main branch of renal vein; *c.* branching of renal artery (art. arciformes); *d.* arteria ascendens; *e.* glomeruli; *f.* convoluted uriniferous tubules; *g.* medullary ray, straight tubuli uriniferi of cortex, longitudinal section; *h.* straight tubuli uriniferi of cortex, cross-section; *i.* region of Henle's loops, longitudinal section; *k.* region of Henle's loops, cross-section; *l.* collecting tubules, cross-section; *m.* openings of collecting tubules passing into pelvis of kidney; *n.* epithelium of pelvis of kidney.

Fig. 2. Arrangements of bloodvessels in kidney : rabbit. L. P. Meth. Carmin-injection III i 5 F.

a. capillaries of cortical portion arising from arteria efferens; *b.* crterial capillary loops of the glomerulus with arteria afferens and efferens; *c.* arteria ascendens; *d.* capillaries of medullary substance.

Fig. 3. *Cortical substance of kidney*, human. M. P. Meth. III i 5, 7 F.

a. straight tubules; *b.* convoluted tubules, longitudinal and oblique sections; *c.* glomerulus.

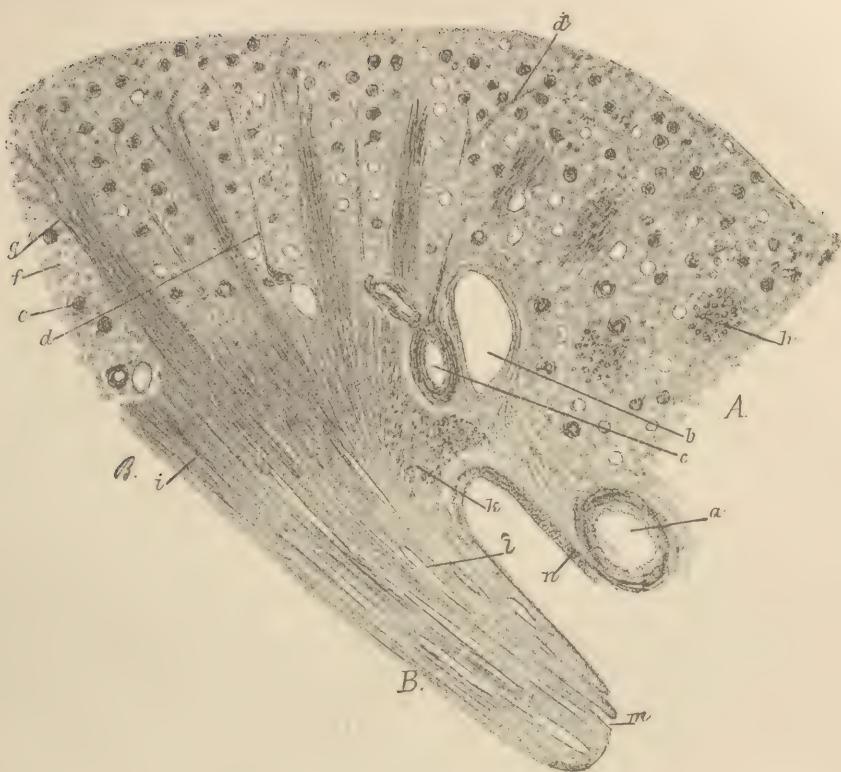


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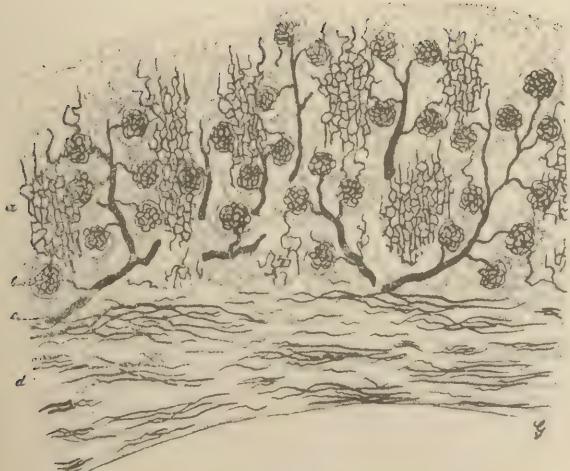


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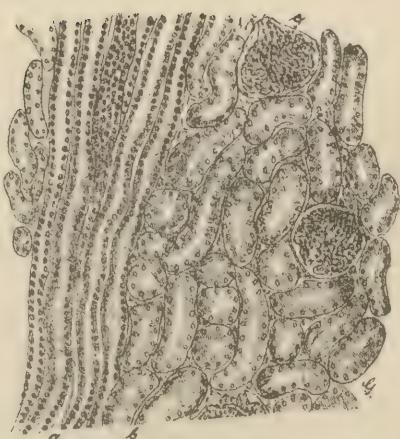


Fig. 3.

PLATE XXXVI.

Kidney.

Fig. 1. Isolated *tubuli uriniferi* from cortical substance of cat's kidney. H. P. Meth XIII a, 1 E.

a. glomerulus; b. convoluted uriniferous tubule; c. straight tubule of medullary ray.

Fig. 2. *Glomerulus* of five-months human foetus. H. P. Meth. VII i, 6 F.

a. epithelium of vascular tuft; b. epithelium of capsule.

Fig. 3. *Cortical substance, kidney* of mouse. H. P. Meth. VI k, 6 F.

a. vascular loops of glomerulus; b. flattened epithelium of Bowman's capsule; c. transitional epithelium of portion of convoluted tubule passing into glomerulus (funnel); d. beginning of convoluted tubule; e. convoluted tubule, cross-section.

Fig. 4. Branching of *vessels of glomerulus*, rabbit's kidney. H. P. Meth. Carmine injection III i, 5 F.

a. arteria ascendens; b. vas efferens; c. tuft of capillary vessels of glomerulus; d. vas efferens; e. capillaries of interstitial tissue.

Fig. 5. *Interstitial tissue, cortical substance, cat's kidney*. H. P. Meth. IV f, 4 E.

a. glomerulus vascular loops; b. Bowman's capsule; c. Stem of glomerulus with artery; d. spaces for convoluted tubules; e. spaces for straight tubules of medullary rays.

Fig. 6. *Medullary substance, human kidney*. Longitudinal section. H. P. Meth. VII f, 6 F.

a. collecting tubules; b. descending limb of Henle's loop; c. ascending limb of Henle's loop, connective tissue with capillaries in between.

Fig. 7. *Medullary substance, kidney, monkey*. Cross-section. H. P. Meth. III i 5, 7 F.

a. collecting tubules; b. ascending limb; c. descending limb of Henle's loop; d. blood vessels.

Fig. 8. *Isolated loop of Henle*; cat's kidney. H. P. Meth. XIII a 1 E.

a. ascending; b. descending limb of Henle's loop.



Fig. 1.



Fig. 2.

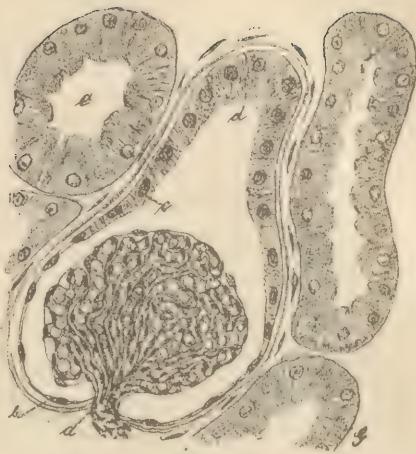


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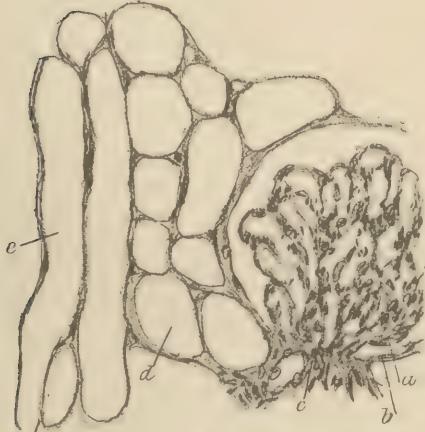


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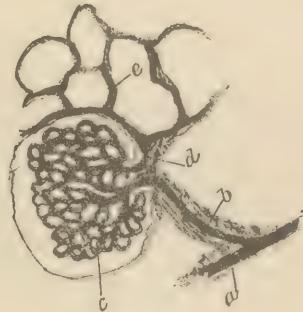


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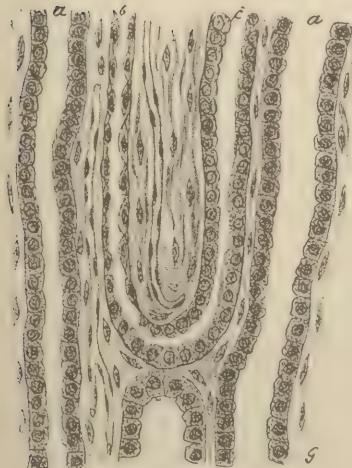


Fig. 6.



Fig. 8.



Fig. 7.



XXXVII. PELVIS OF KIDNEY, URETER, BLADDER.

PLATE XXXVII.

Pelvis of kidney, Ureter, Bladder.

Fig. 1. Mouth of *collecting tubule* into pelvis of kidney, kidney of monkey. H. P. Meth. VII i 5, 7 F.

- a. stratified transitional epithelium on surface of medullary papilla; b. stratified columnar epithelium at mouth of collecting tubule; c. single layer of columnar epithelium of collecting tubule; d. interstitial connective tissue with numerous blood-vessels.

Fig. 2. Wall of *pelvis of kidney*, rat. M. P. Meth. Carmine-injection III i 5 F.

- a. connective tissue with muscle-fibres; b. stratified transitional epithelium; c. blood-vessels of connective tissue; d. blood-vessels of epithelium.

Fig. 3. *Stratified transitional epithelium*, of pelvis of kidney, monkey. H. P. Meth. VII i 5, 7 F.

- a. connective tissue; b. blood-vessels of connective tissue extending to the limits of epithelium; c. columnar cells, the deep layer of the epithelium; d. club-shaped cells, middle layer of epithelium; e. surface epithelium of irregular shape, partly multinucleated, * separated cell.

Fig. 4. *Ureter*, new-born child. Cross-section. L. P. Meth. III i 5, 7 F.

- a. stratified transitional epithelium; b. mucosa with blood-vessels; c. longitudinal muscle bundles, cross-section; d. circular muscle-bundles.

Fig. 5. *Wall of bladder*, near neck, monkey. Cross section. L. P. Meth. III. i 5, 7 F.

- a. stratified transitional epithelium; b. mucosa with blood-vessels; c. muscularis, consisting of external and internal longitudinal layer with a circular layer in between,



Fig. 1.

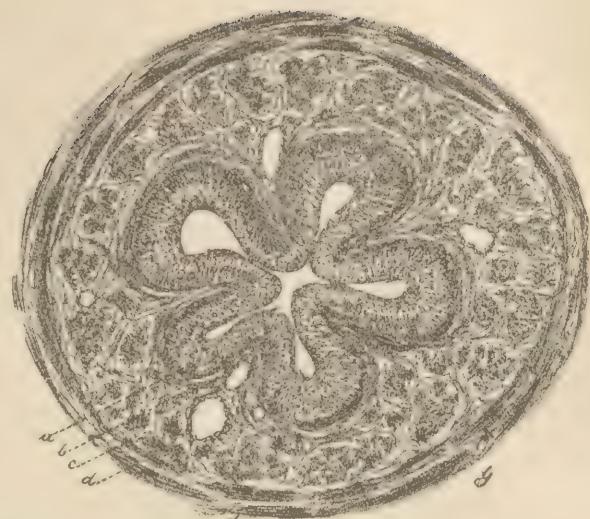


Fig. 4.

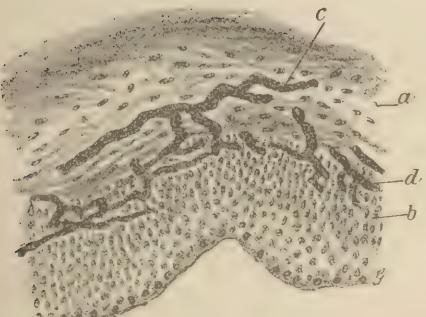


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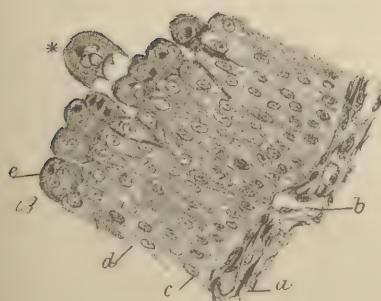


Fig. 3.



Fig. 5.

PLATE XXXVIII.

Urethra.

Fig. 1. *Mucous membrane of male urethra from prostatic portion*, man. H. P. Meth. III i 5, 7 F.

a. stratified columnar epithelium; b. stratified transitional epithelium; c. mucosa; d. muscularis.

Fig. 2. *Mucous membrane of male urethra from cavernous portion*, man. H. P. Meth. III i 5, 7 F.

a. stratified columnar epithelium; b. mucosa with blood-vessels; c. Littre's gland with beaker-cells in lower portion.

Fig. 3. *Mucous membrane of male urethra from fossa navicularis*; man. H. P. Meth. III i 5, 7 F.

a. stratified columnar epithelium; b. mucosa.

Fig. 4. *Pars prostatica of male urethra*, man : general view. L. P. Meth. III i 5, 7 F.

a. lumen of urethra; b. colliculus seminalis; c. vesicula prostatica; d. ductus ejaculatorius; e. excretory ducts of prostate; f. glandular lobules of prostate; g. circular fibres of plain muscle; h. striated muscle-fibres of musculus sphincter vesicae externus; i. plain longitudinal muscle-fibres; k. sympathetic nerve-plexus.

Fig. 5. *Membranous part of male urethra*, man : general view. L. P. Meth. III i 5, 7 F.

a. lumen of urethra; b. mucosa with plain circular muscle-fibres; c. sphincter vesicae externus; d. Cowper's gland; e. arteria profunda penis; f. vena profunda penis.

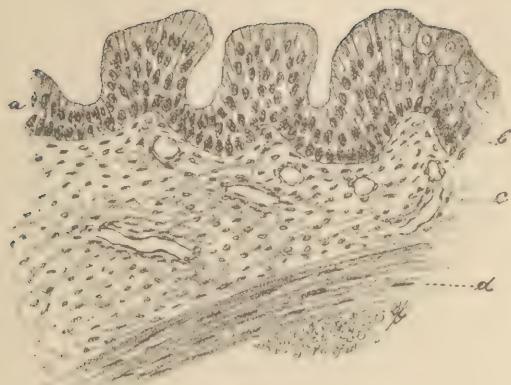


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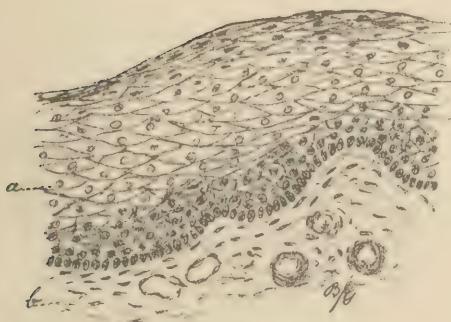


Fig. 3.



Fig. 2.



Fig. 5.



Fig. 4.

XXXIX. URETHRA.

PLATE XXXIX.

Urethra.

Fig. 1. *Pars cavernosa of male urethra*, man ; general view. L. P. Meth. III i 5 7 F.

a. section of lumen of urethra; b. mucosa urethrae; c. corpus cavernosum urethrae; d. corpus cavernosum penis; e. arteria profunda penis; f. arteria dorsalis penis; g. vena dorsalis penis; h. nervus dorsalis penis with Pacinian corpuscles; i. musculus ischiocavernosus; k. musculus bulbo-cavernosus.

Fig. 2. Transverse-section of penis. L. P. Meth. III i 5, 7 F.

a. lumen of urethra; b. gland of Littré; c. corpus cavernosum urethrae; d. corpus cavernosum penis with arteria profunda; e. septum penis; f. vena dorsalis penis; g. arteria dorsalis penis; h. subcutaneous connective tissue; i. cutis; k. epidermis.

Fig. 3. *Glans penis*, transverse section. L. P. Meth. III i 5, 7 F.

a. lumen of urethra; b. corpus cavernosum urethrae; c. corpus cavernosum penis; d. corpus cavernosum glandis; e. mucous membrane of glans penis; f. inner layer of prepuce; g. outer layer of prepuce; h. fraenulum praeputii.

Fig. 4. *Female urethra*; transverse section. L. P. Meth. VII i 6 F.

a. lumen of urethra; b. Littré's gland; c. mucous membrane of urethra; d. internal longitudinal plain muscle-fibres; e. transverse circular muscle-fibres; f. external plain longitudinal muscle-fibres.

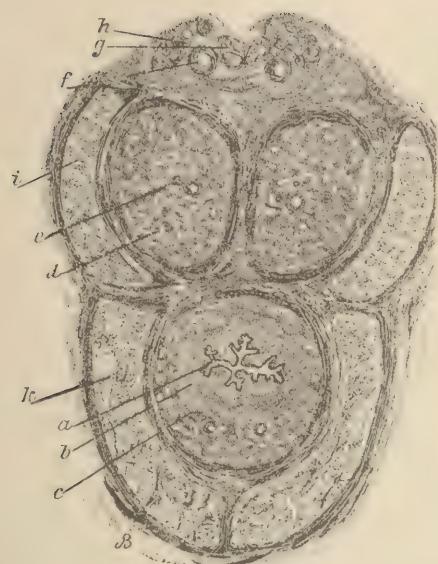


Fig. 1.



Fig. 3.



Fig. 4.

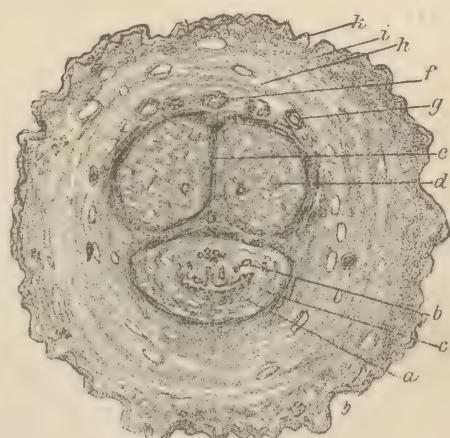


Fig. 2.

PLATE XL.

Penis.

Fig. 1. *Vena dorsalis penis.* Transverse-section. H. P. Meth. VIII i 5, 7 F.

a. endothelium; b. intima with thickenings and plain muscle-fibres; c. media with circular muscle-fibres.

Fig. 2. *Corpus cavernosum penis.* M. P. Meth. III i 5, 7 F.

a. arteria profunda penis; b. cross-section of nerve; c. venous sinus; d. trabeculae of connective tissue with smooth muscle-fibres.

Fig. 3. *Urethra, pars cavernosa, man.* M. P. Meth. III i 5, 7 F.

a. stratified columnar epithelium; b. excretory duct of a gland of Littré; c. gland of Littré; d. corpus cavernosum urethrae; e. mucosa with bundles of smooth muscle-fibres; f. corpus cavernosum penis; g. tunica albuginea of same.

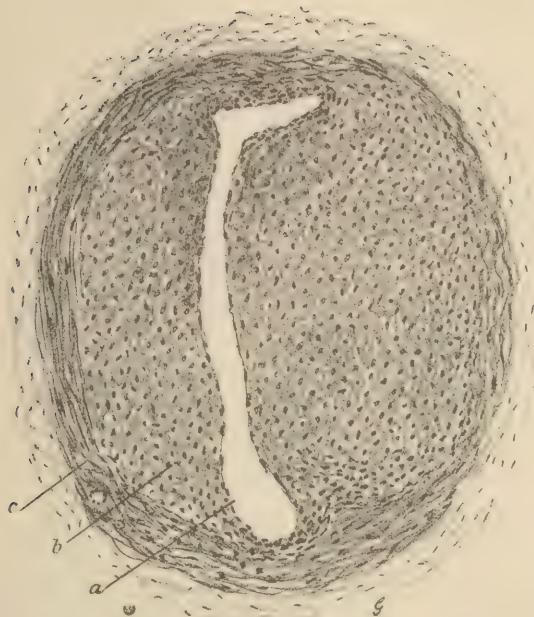


Fig. 1.



Fig. 2.



Fig. 3.

XLI. VAS DEFERENS, VESICULA SEMINALIS, PROSTATE.

PLATE XLI.

Vas Deferens, vesicula seminalis, prostate.

Fig. 1. *Vas deferens*; section from the neighborhood of the epididymis, man.
M. P. Meth. VI i 6 F.

a. columnar epithelium; b. mucosa; c. internal layer of longitudinal muscle-fibres; d. layer of circular muscle-fibres; e. external layer of longitudinal muscle-fibres; f. connective tissue with blood-vessels and nerves; g. striated muscle-bundles of the musculus cre-
master internus.

Fig. 2. *Vas efferens* from human *epididymis*. Transverse section. H. P. Meth.
VII i 6 F.

a. ciliated epithelium; b. layer of reserve-cells; c. mucosa; d. circular muscular fibres;
e. stroma of epididymis.

Fig. 3. *Seminal vesical* cross-section of wall, human. H. P. Meth. III h 5, 7 F.

a. cubical epithelium of surface; b. recessus of epithelium; c. glands; d. corpus amy-
laceum; e. stroma mucosae; f. muscularis.

Fig. 4. *Prostate*, new-born child. H. P. Meth III i 5, 7 F.

a. glandular cavity with swollen epithelial cells in the middle and columnar cells on the
out-side; b. glandular alveolus with stratified low columnar epithelium; c. alveolus
with corpora amylacea. d. stroma of gland; e. plain muscle-fibres.

Fig. 5. *Prostate* of adult. H. P. Meth III i 5, 7 F.

a. empty alveolus; b. alveolus with large corpus amylaceum; c. stroma with plain mus-
cle-fibres.



Fig. 1.

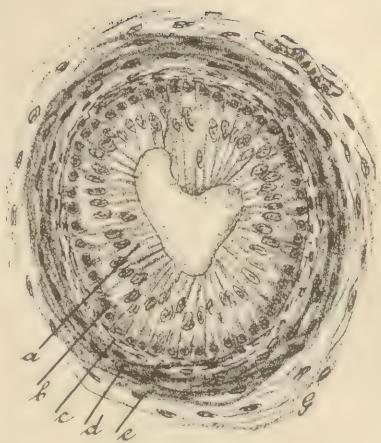


Fig. 2.



Fig. 3.

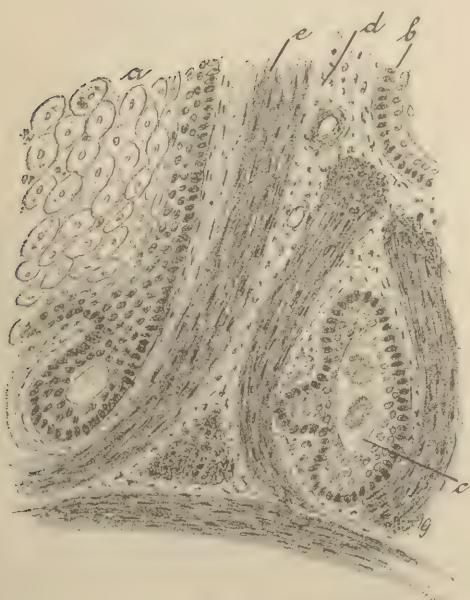


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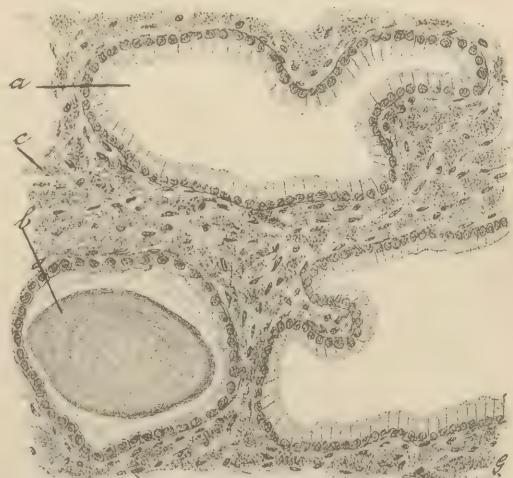


Fig. 5.

XLII. TESTICLE.

PLATE XLII.

Testicle.

Fig. 1. *Testicle* of new-born child. H. P. Meth. VII $\times 6$ F.

a. stroma; b. membrane-propria; c. seminal canal; d. vegetative sexual cells, (follicular cells) e. germinating sexual cells (spermatogons).

Fig. 2. *Seminiferous tubule* of adult, cross-section. H. P. Meth. VI $\times 6$ F.

a. stroma with interstitial cells (b); c. membrana propria; d. spermatogons; * karyokinesis (layer of reserve-cells); e. spermatocyte (layer of mother-cells); f. karyokinesis of spermatocytes; g. spermato blasts; h, i, k. different developmental stages of spermato-blasts; l. spermatozoa; m. basal cells.

Fig. 3. *Testicle* of guinea pig in rut. H. P. Meth. VI. $\times 3$, 9 F.

a. stroma; b. fatty interstitial cells; c. canals in state of rest; d. canals with spermato-blasts in first stage of development; (copulation); e. canals with spermato-blasts in later stage of development (Ebner's spermato-blasts); f. canals after the maturing of the spermatozoa; g. karyokinesis of the spermato-blasts; h. karyokinesis of the spermatogons.

Fig. 4. *Rete testis*, human. H. P. Meth. $\times 6$ F.

a. longitudinal section; b. cross section of canal of rete; c. opening of straight seminiferous tubule; d. Stroma.



Fig. 1.

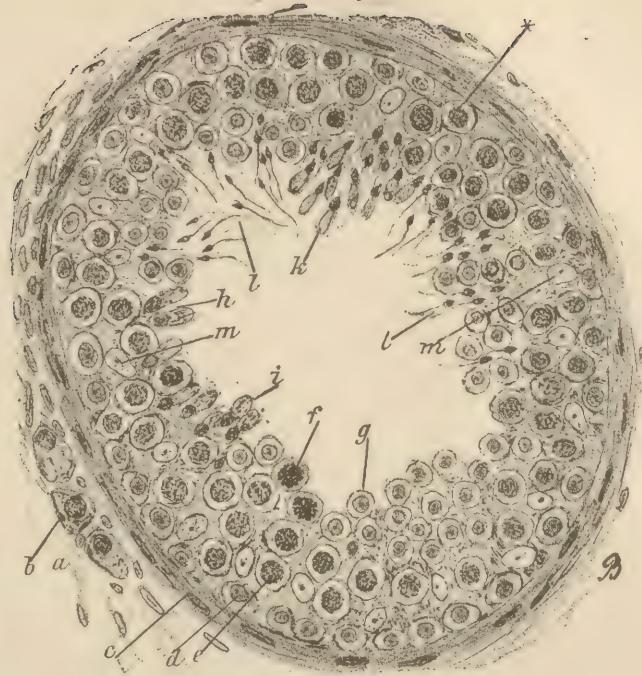


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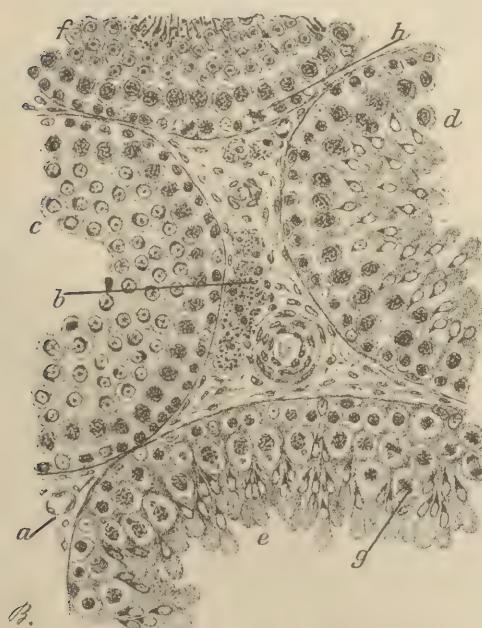


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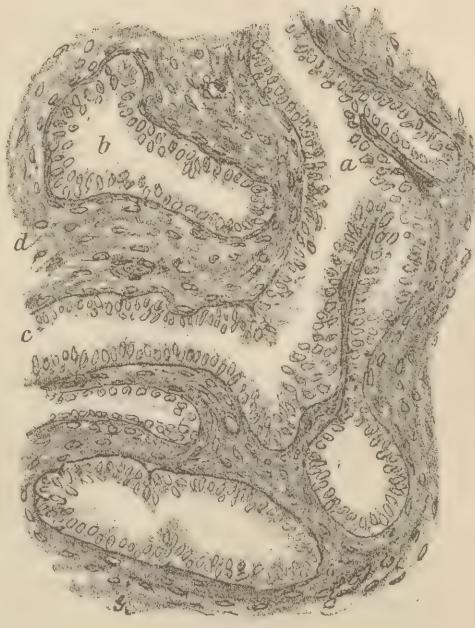


Fig. 4.

XLIII. SPERMATO-ZOA.

PLATE XLIII.

Spermato-zoa.

Fig. 1. A—F. Transformation of a Spermatoblast into spermato-zoon, ox.
H. P. (oil immersion) $\frac{1}{12}$) Meth. VI k, 6 F.

a. cell-body; b. chromatin-portion of nucleus; c. chromatoid centrosoma; d. archiplasma.
F. mature spermato-zoon of ox; a. remnant of cell-body; b. head of spermato-zoon; c. middle piece; d. tail.

Fig 2 A—G. Transformation of a spermatoblast into spermato zoon, mouse.
H. P. (oil immersion $\frac{1}{12}$) Meth. VI k 3, 9 F.

a. cell-body; b. chromatin-portion of nucleus; c, d. as in Fig. 1.—G. mature spermato-zoon of mouse, a, b, c, d, e. as in Fig. 1.

Fig. 3. Mature spermato-zoa, man. H. P. (oil immersion $\frac{1}{12}$) Meth. XII a, 1 E.

Fig. 4. Mature spermato-zoa, ox. H. P. (oil immersion) Meth. XII a, 1 E.

Fig. 5. Mature spermato-zoa, dog. H. P. (oil immersion) Meth. XII a, 1 E.

Fig. 6. Mature spermato-zoa, guinea pig. (Oil immersion) Meth. XII a, 1 E.

Fig. 7. Mature spermato-zoa, rat. (Oil immersion) Meth. XII a, 1 E.

Fig. 8. Mature spermato-zoa, mouse. (Oil immersion) Meth. XII a, 1 E.

Fig. 9. Mature spermato-zoa, rabbit. (Oil immersion) Meth. XII a, 1 E.

Fig. 10. Mature spermato-zoa, fo.e. (Oil immersion) Meth. XII a, 1 E.

Fig. 11. Mature spermato-zoa, frog (land). (Oil immersion) Meth. XII a, 1 E.

Fig. 12. Mature spermato-zoa, frog (water). (Oil immersion) Meth. XII a, 1 E.

Fig. 13. Mature spermato-zoa, salamander. (Oil immersion) Meth. XII a, 1 E.

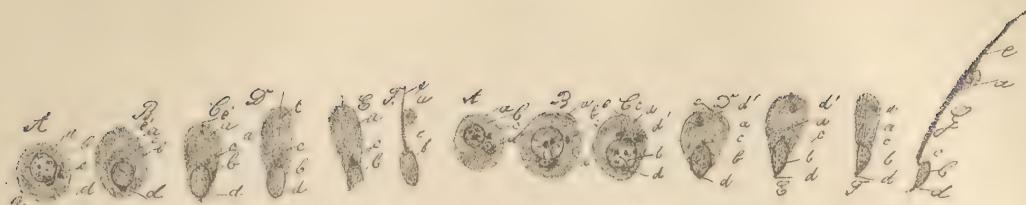


Fig. 1.

Fig. 2.



Fig. 3.



Fig. 4.

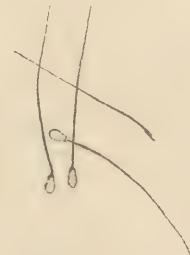


Fig. 5.

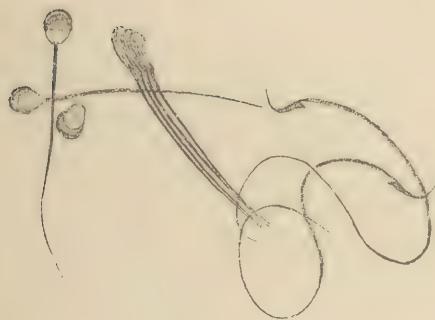


Fig. 6.



Fig. 7.

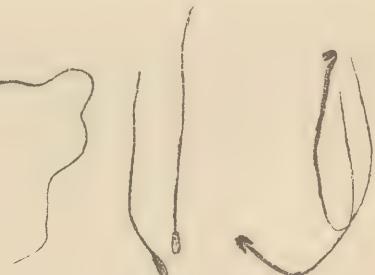


Fig. 9.

Fig. 10.



Fig. 8.



Fig. 11.

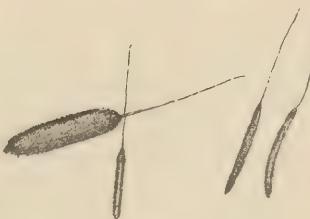


Fig. 12.



Fig. 13.

XLIV. VAGINA AND UTERUS.

PLATE XLIV.

Vagina and Uterus.

Fig. 1. *Vagina* of new born child. M. P. Meth. III i 5, 7 F.

a. stratified squamous epithelium; b. mucosa with ridges and papillæ; c. muscularis.

Fig. 2. *Portio vaginalis*; orificium externum of new-born child, longitudinal section. M. P. Meth. VII i 6 F.

a. stratified squamous epithelium of vaginal surface; b. columnar epithelium of cervical canal with nests of squamous epithelium; c. mucosa.

Fig. 3. *Wall of uterus*, section, new-born child. L. P. Meth. III i 5, 7 F.

a. epithelium of surface; b. entrance to utricular gland; c. cross-section of utricular gland; d. mucosa; e. muscularis.

Fig. 4. *Uterus*, human, adult. M. P. Meth. VII i 6 F.

a. surface epithelium; b. entrance to utricular gland; c. cross-section of utricular gland; d. substance of mucosa, rich in cells; e. muscularis.

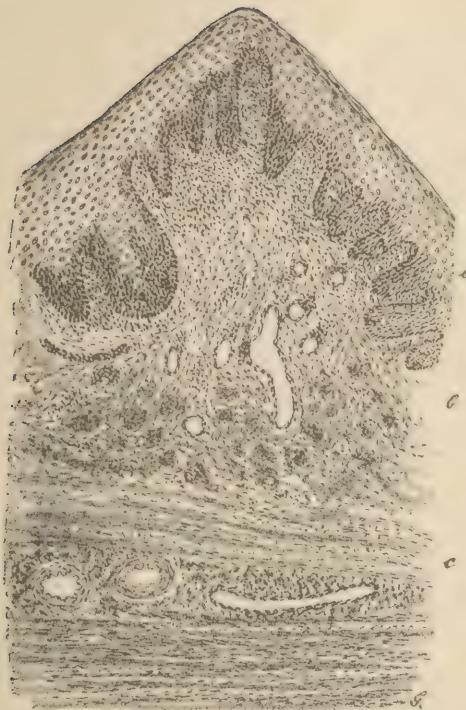


Fig. 1.



Fig. 2.

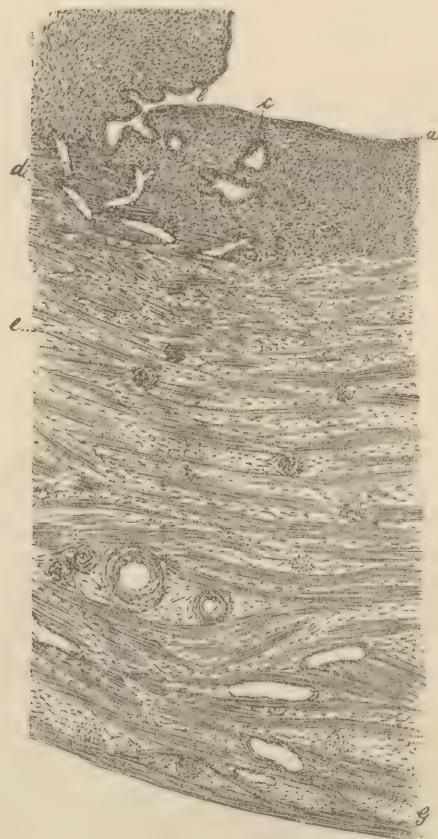


Fig. 3.



Fig. 4.

XLV. FALLOPIAN TUBE.

PLATE XLV.

Fallopian Tube.

Fig. 1. *Fallopian tube* of child ; cross section. L. P. Meth. VII 6, 7 F.

a. place of insertion of broad ligament; b. serosa; c. muscularis; d. mucosa; e. cross-section of folds of mucosa.

Fig. 2. *Fold of mucosa of tube*, cross-section. H. P. Meth. VII i 6, 7 F.

a. muscularis; b. ciliated columnar epithelium; c. substantia propria of mucous membrane with blood-vessels in the interior of the fold.

Fig. 3. *Fimbria*, longitudinal section.

a. ciliated columnar epithelium of tubal surface of a fimbria; b. ciliated columnar epithelium of peritoneal surface of a fimbria; c. transitional form of columnar epithelium; d. flat epithelium of peritoneum (endothelium); e. substantia propria with blood-vessels; f. accidental loosening of epithelium,

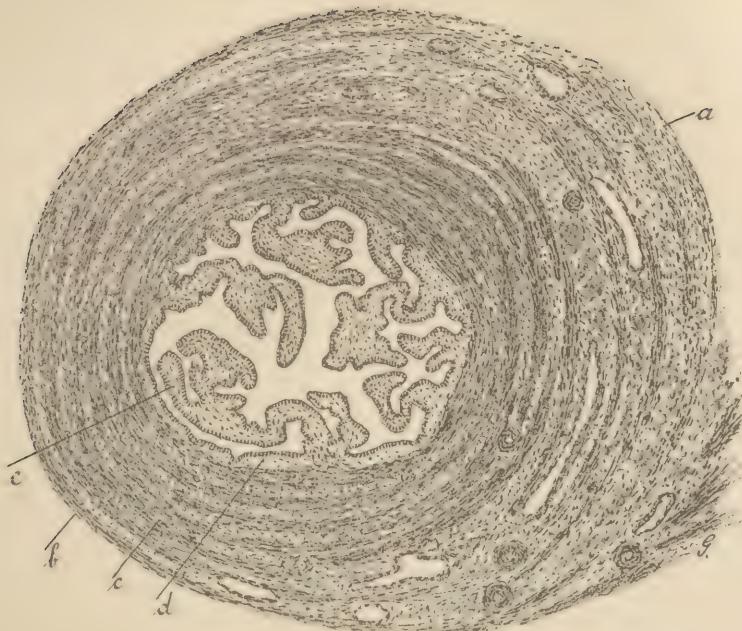


Fig. 1.

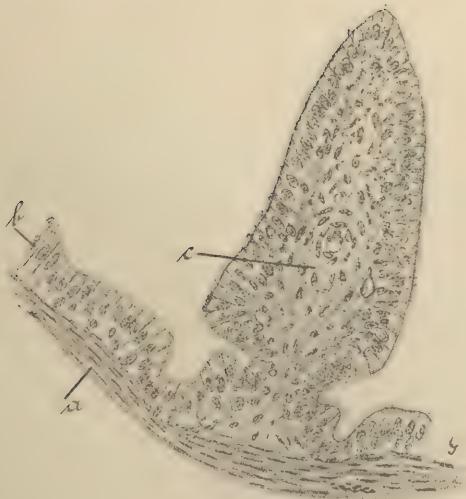


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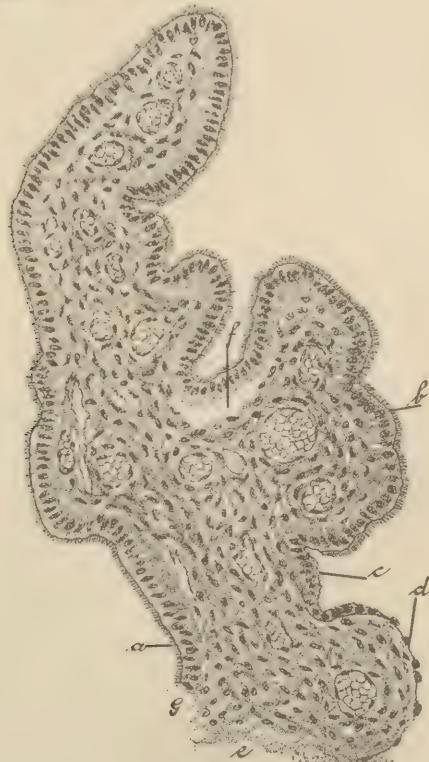


Fig. 3.

PLATE XLVI.

Ovary.

Fig. 1. *Ovary of monkey*; general view. L. P. Meth. III i 5, 7 F.

a. hilus; b. stroma; c. mature Graafian follicle of cortical substance; d. less mature Graafian follicle; e. albuginea; f. epithelium.

Fig. 2. *Cortical substance, ovary* of new-born child. H. P. Meth. VII i, 6 F.

a. germinal epithelium; b. connection of germinal epithelium with follicular strands; c. Graafian follicle, early stage; d. albuginea.

Fig. 3. *Mature ovum* of rabbit, isolated, fresh. H. P. Meth. I c, 1 B.

a. cells of zona radiata; b. zona pellucida with radiating striation; c. vitelline membrane; d. yolk with yolk-granules; e. germinal vesicle (nucleus); f. germinal spot (nucleolus).

Fig. 4. *Mature Graafian follicle* from ovary of monkey. H. P. Meth III i 5, 7 F.

a. theca folliculi; b. epithelium of follicle; c. cumulus ovigerus; d. zona radiata; e. zona pellucida; f. vitelline membrane; g. cell-body; h. germinal vesicle; i. germinal spot; k. cavity of follicle with liquor folliculi; l. stroma ovarii with young follicles.

Fig. 5. *Corpus luteum*, rabbit. H. P. Meth. VII i, 6 F.

a. ovarian epithelium; b. albuginea; c. young Graafian follicle; d. stroma of ovary with large interstitial cells; e. theca folliculi with proliferating cells; * karyokineses; f. remnant of follicle with blood-corpuscles, free pigment and migratory cells containing pigment.

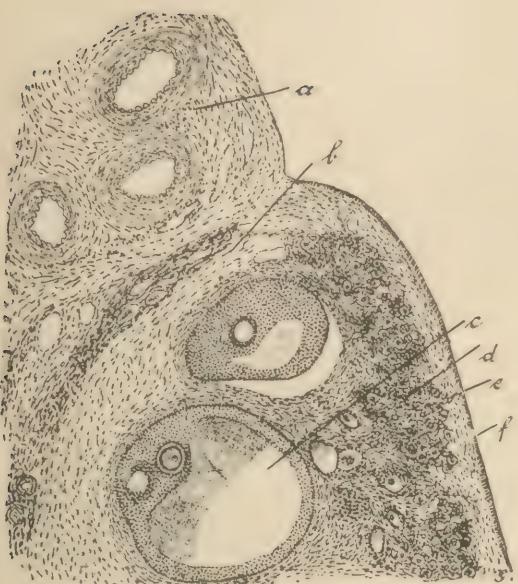


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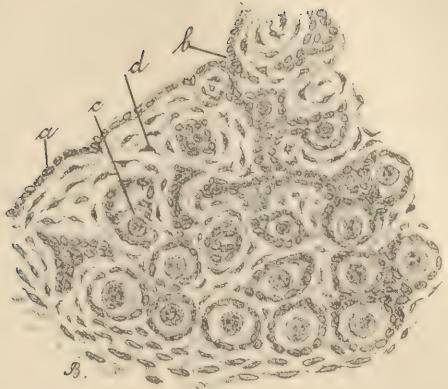


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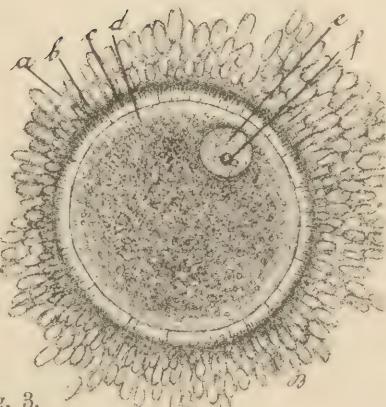


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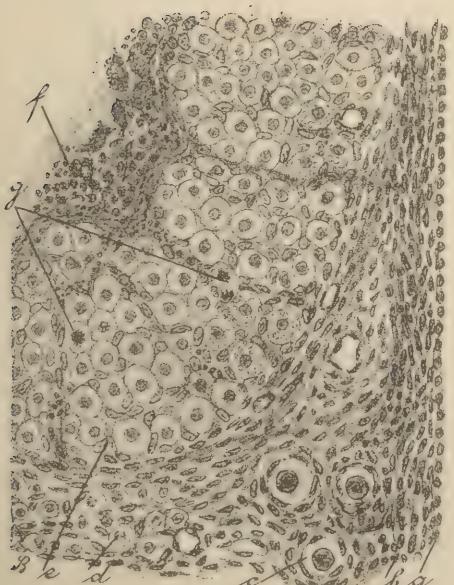


Fig. 5.

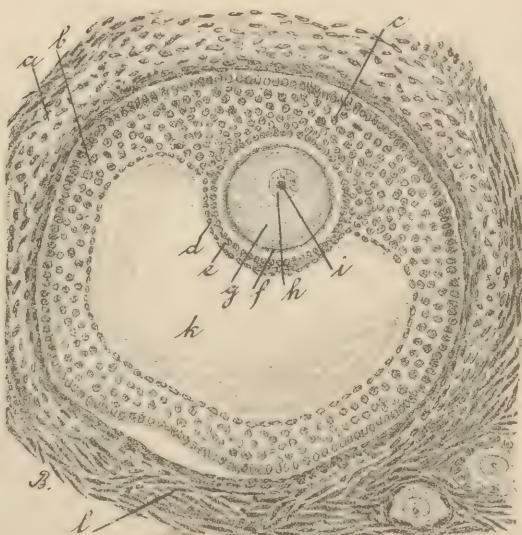


Fig. 4.

XLVII. HUMAN SPINAL CHORD.

PLATE XLVII.

Human spinal chord.

Transverse section of spinal chord at different heights after the manner of Gower's plate.

Fig. 1. *Cauda equina.*

Fig. 2, 3, 4. *Lumbar enlargement.*

Fig. 5, 6, 7. *Dorsal portion.*

Fig. 8, 9, 10. *Cervical enlargement.*

Fig. 11. *Upper cervical portion.*

Fig. 12. *Transition into Medulla oblongata.*

a. central canal; *b.* anterior horns; *c.* anterior roots; *d.* posterior horns; *e.* posterior roots; *f.* posterior columns; *g.* lateral columns; *h.* anterior columns; *i.* Clarke's columns.

Abbreviations signify: Co. Coccygeal region; Sac. sacral region; Lum. lumbar region; Dor. dorsal region; Cer. cervical region.

Fig. 13. *Medulla oblongata; lowest portion.*

a. gracile tract; *b.* cuneate tract; *c.* ascending root of trigeminus; *d.* lateral tract; *e.* root of hypoglossus; *f.* crossing of pyramids; *g.* pyramid; *h.* fibrae arcuatae; *i.* aebrae arcuatae externae; *k.* nucleus of gracile tract; *l.* nucleus of cuneate tract; *m.* suestautia gelatinosa; *n.* nucleus of hypoglossus; *o.* remnant of lateral nucleus; *p.* olive; *q.* nucleus arcuatus; *r.* central canal.

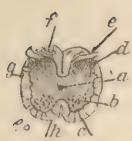


Fig. 1.



Fig. 2.

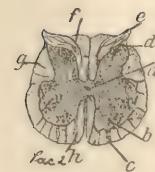


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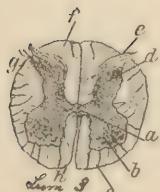


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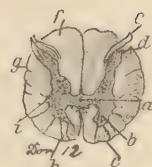


Fig. 5.

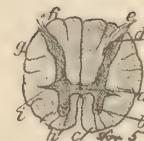


Fig. 6.

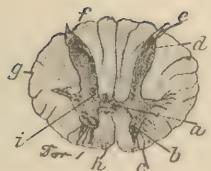


Fig. 7.

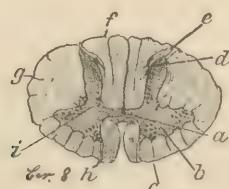


Fig. 8.

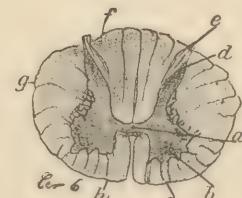


Fig. 9.

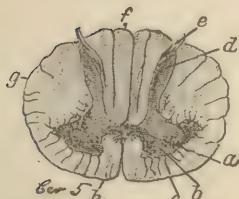


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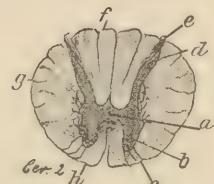


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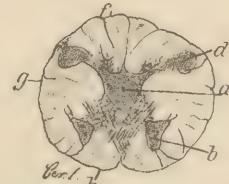


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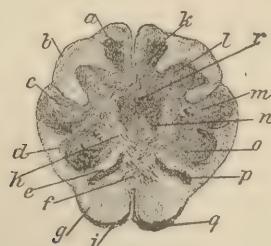


Fig. 13.

XLVIII. PEDUNCLE OF HUMAN BRAIN.

PLATE XLVIII.

Peduncle of human brain.

Fig. 1. Lower portion of medulla oblongata, cross-section. L. P. Meth. III g 5, 4 F.

- a. pyramids; b. fibrae arcuatae externae; c. fibrae arcuatae internae; d. ascending root of trigeminus; e. lateral tract; f. cuneate tract; g. gracile tract; h. substantia reticularis; i. olive; k. nucleus of hypoglossus; l. lateral nucleus; m. substantia gelatinosa; n. nucleus of cuneate tract; o. nucleus of gracile tract; p. central canal; q. nucleus arcuatus; r. root of hypoglossus.

Fig. 2. Posterior portion of medulla oblongata, cross-section. L. P. Meth. III g 5, 4 F.

- a. pyramids; b. root of hypoglossus; c. root of vagus; d. corpus restiforme; e. funiculus teres; f. formatio reticularis; g. olive; h. nucleus of hypoglossus; i. nucleus of pneumogastric; k. fibrae arcuatae externae; l. ascending root of fifth nerve; m. fibrae arcuatae posteriores; n. cuneate tract; o. gracile tract; p. ascending root of pneumogastric (respiratory fasciculus); q. nucleus of corpus restiforme; r. substantia gelatinosa; s. nucleus arciformis.

Fig. 3. Medulla oblongata, cross-section through middle of fourth ventricle. L. P. Meth. III g 5, 4 F.

- a. pyramid; b. root of hypoglossus; c. inferior root of eighth nerve; d. external root of eighth nerve; e. corpus restiforme; f. substantia reticularis; g. olive; h. median nucleus of eighth nerve; i. lateral nucleus of eighth nerve; k. nucleus of hypoglossus; l. posterior longitudinal bundles; m. fibrae arcuatae externae; n. tract between olive and cerebellum; o. ascending root of V nerve; p. common root of VIII nerve; g. striae acusticae; r. nucleus of Deiter's; s. substantia gelatinosa; t. nucleus arciformis.

Fig. 4. Pons cross-section through lower portion. L. P. Meth. III g 5, 4 F.

- a. pyramid; b. fibres of pons; c. root of abducens; d. root-bundle of facialis; e. nucleus of facialis; f. posterior longitudinal bundle; g. raphe; h. nuclei of pons; i. superior olive; k. nucleus of VII nerve; l. nucleus of VI nerve; m. ascending root of V nerve.

Fig. 5. Pons, cross-section through middle portion. L. P. Meth. III g 5, 4 F.

- a. pyramid; b. fibres of pons; c. place of exit of V nerve; d. fillet; e. peduncle of cerebellum passing to corpora quadrigemina; f. ascending root of V nerve; g. posterior longitudinal bundle; h. velum medullare; i. nuclei of pons; k. locus caeruleus; l. aquaeductus Sylvii; m. motor nucleus of V nerve; n. raphe; o. brachium.

Fig. 6. Pons, cross-section through upper portion. L. P. Meth. III g 5, 6 F.

- a. pyramid; b. fibres of pons; c. medial fillet; d. lateral fillet; e. formatio reticularis; f. posterior longitudinal bundle; g. decussation of trochlearis; h. nuclei of pons; i. locus caeruleus; k. nucleus of trochlearis; l. aquaeductus Sylvii; m. brachium.

Fig. 7. Region of upper corpora quadrigemina, cross-section. L. P. Meth. III g 5, 4 F.

- a. root of IV nerve; b. crus cerebri; c. fillet; d. posterior longitudinal bundle; e. substantia nigra; f. tegmentum; g. central gray matter of aquaeduct of Sylvius; h. superior corpora quadrigemina; i. nucleus of IV nerve; k. aquaeduct of Sylvius; l. brachium.

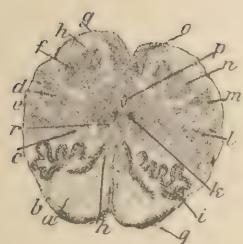


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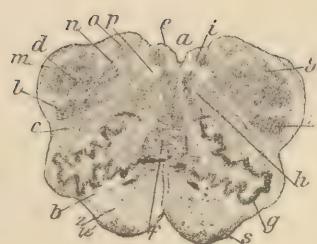


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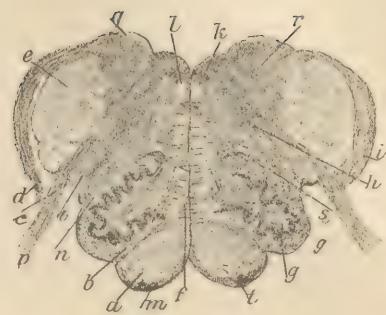


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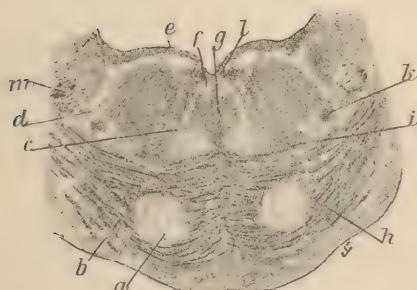


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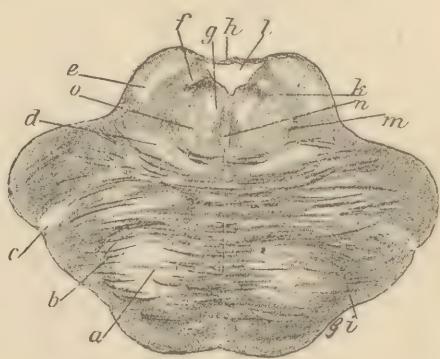


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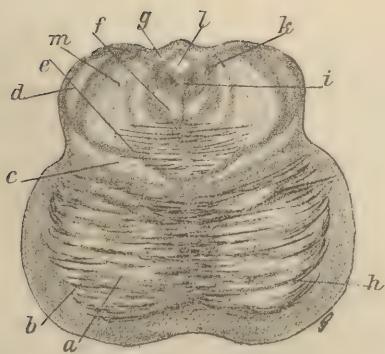


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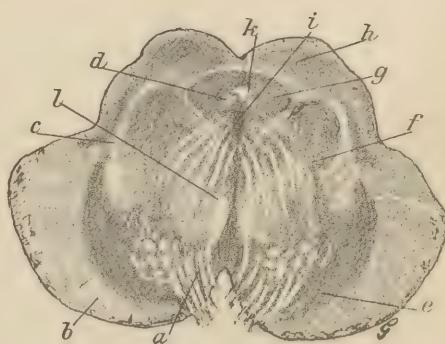


Fig. 7.

XLIX. SPINAL CHORD AND MEDULLA OBLONGATA.

PLATE XLIX.

Spinal Chord and Medulla oblongata.

Fig. 1. *Spinal chord*, dog, dorsal portion, transverse section. L. P. Meth. VII i 16 F.

a. anterior column; b. anterior root; c. antero-lateral column; d. postero-lateral column; e. posterior root-bundles; f. collaterals of posterior root-bundles; g. cuneate tract; h. gracile tract; i. white commissure; k. central canal; l. grey commissure; m. anterior horns (motor ganglia); n. Clarke's column; o. formatio reticularis; p. substantia gelatinosa Rolandi.

Fig. 2. Place of exit of *anterior root*, *spinal chord* of dog. H. P. Meth. VII i 6 F.

a. nerve-fibres of anterior columns, cross-section; b. fibres of anterior root, longitudinal section; c. fibres leaving the chord; d. pia mater.

Fig. 3. Posterior portion of *central canal*, spinal chord of young dog. H. P. Meth. VII. i 6 F.

a. epithelial cells of central canal, partly with cilia; b. basal processes passing towards posterior commissure; c. posterior columns, cross-section.

Fig. 4. *Anterior horn spinal marrow*, young dog. H. P. Meth. VII i 6 F.

a. ganglion cells with chromophile granulations; b. protoplasmic process with granulations; c. place of origin of axis-cylinder, free from granulations; d. axis-cylinder-process; e. nucleus of ganglion cell; f. nuclei of neuroglia cells; g. fibre-bundles; h. ganglion cells with few granules; i. ganglion cell without granules.

Fig. 5. *Olivary body*, human medulla oblongata. H. P. Meth. III g 5, 7 F.

Fig. 6. *Formatio reticularis*, medulla oblongata of rabbit. H. P. Meth. VII i 6 F.

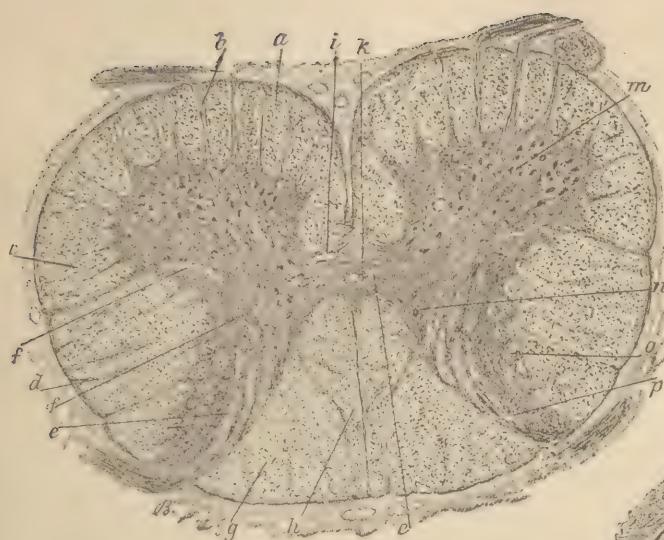


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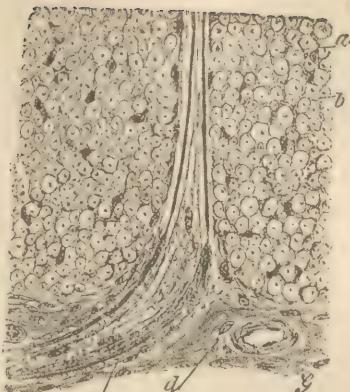


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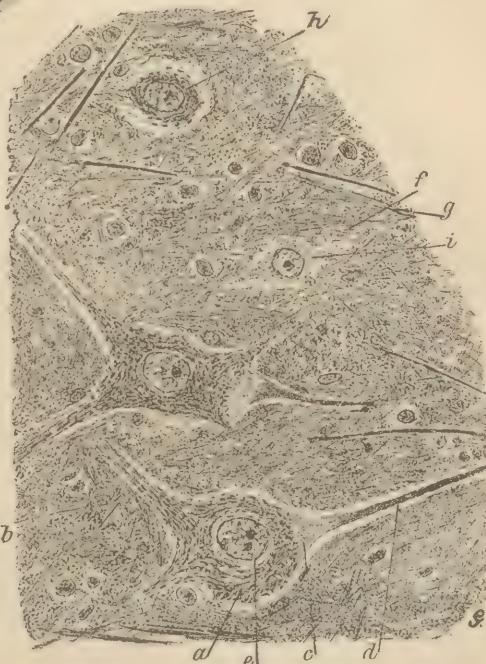


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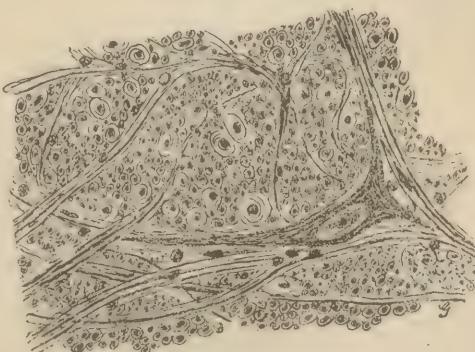


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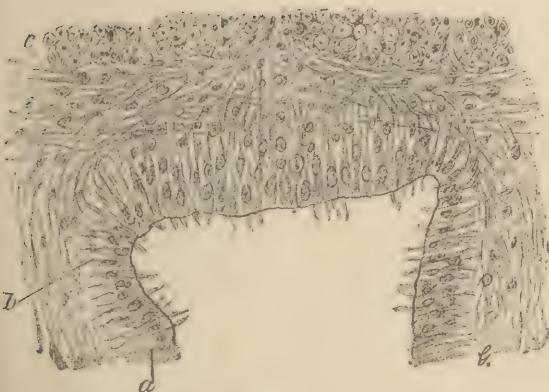


Fig. 3.

L. CEREBRAL CORTEX, HUMAN.

PLATE L.

Cerebral cortex, human.

Fig. 1. *Cerebral cortex, central convolution.* L. P. Meth. III g 5, 4 F.

a. medullary substance; b. layer of spindle cells; c. radial bundles; d. giant pyramidal cells; e. large pyramidal cells; f. stratum of Baillarger; g. small pyramidal cells; h. tangential fibres; i. pia mater.

Fig. 2. *Cerebral cortex, occipital lobe.* L. P. Meth. III g 5, 4 F.

a. medullary substance; b. layer of spindle cells; c. inner granular layer; d. layer of large pyramidal cells; e. outer granular layer; f. layer of Vicq. d'Azyr; g. small pyramidal cells; h. tangential fibres.

Fig. 3. *Cornu Ammonis.* L. P. Meth. III g 5, 4 F.

a. ependyma of lateral ventricle; b. medullary layer of alveus; c. layer of spindle-cells; d. large pyramidal cells; e. stratum radiatum; f. layer of lacunae; g. small pyramidal cells; h. tangential fibres.

Fig. 4. *Fascia dentata* Tarini L. P. Meth. III g 5, 4 F.

a. spindle-cells and nerve-fibres; b. large pyramidal cells; c. stratum granulosum (small pyramidal cells).

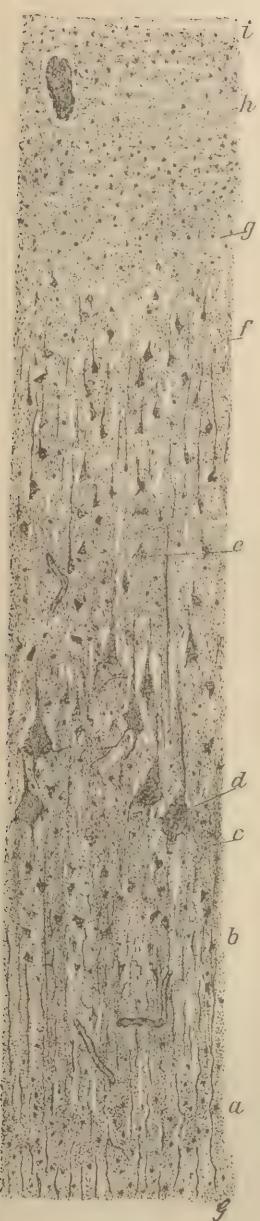


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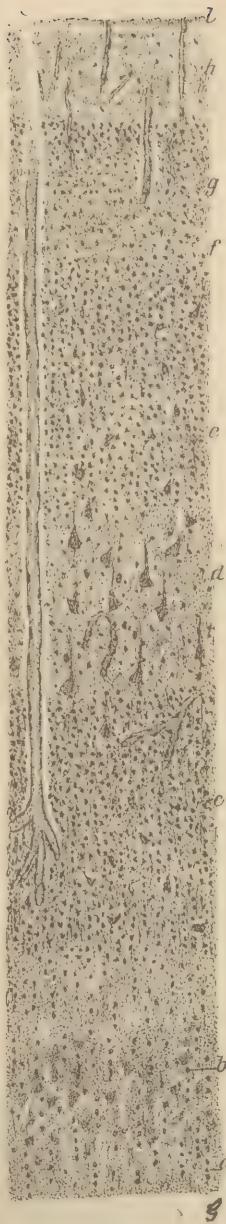


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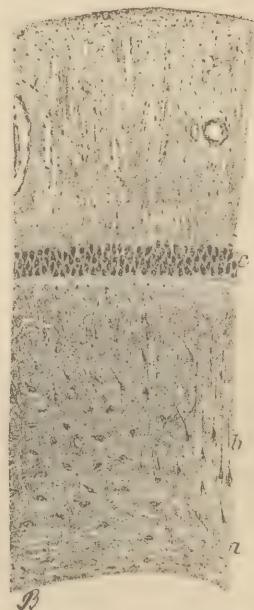


Fig. 4.

LI. GANGLION-CELLS OF CEREBRUM.

PLATE LI.

Ganglion-cells of cerebrum.

Fig. 1. *Nerve-cell* from *cerebral cortex* of rabbit. Golgi's method. H. P. Meth. 16 *f*, *F*.

a. axis-cylinder, directed towards periphery; *b.* dendrites.

Fig. 2. *Pyramidal nerve-cell* from *cerebral cortex* of rabbit. Golgi's method. H. P. Meth. 16 *f* *F*.

a. axis-cylinder, directed towards center; *b.* principal dendrite directed towards periphery;
c. dendrites.

Fig 3. *Pigmented ganglion-cell* from *substantia nigra* of *crus cerebri* of man. H. P. Meth. III *g* 5, 4 *F*.

a. cell-nucleus; *b.* pigment in body of cell; *c.* processes.

Fig. 4. *Glia-cells* from *cerebral cortex* of rabbit. Golgi's method. H. P. Meth. 16 *f*, *F*.

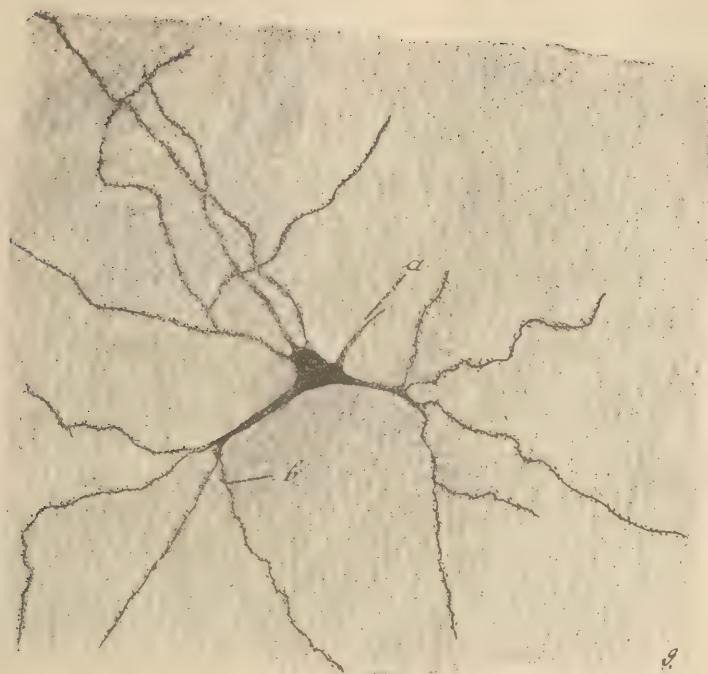


Fig. 1.



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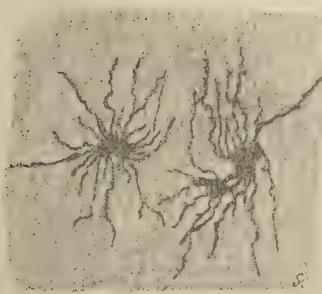


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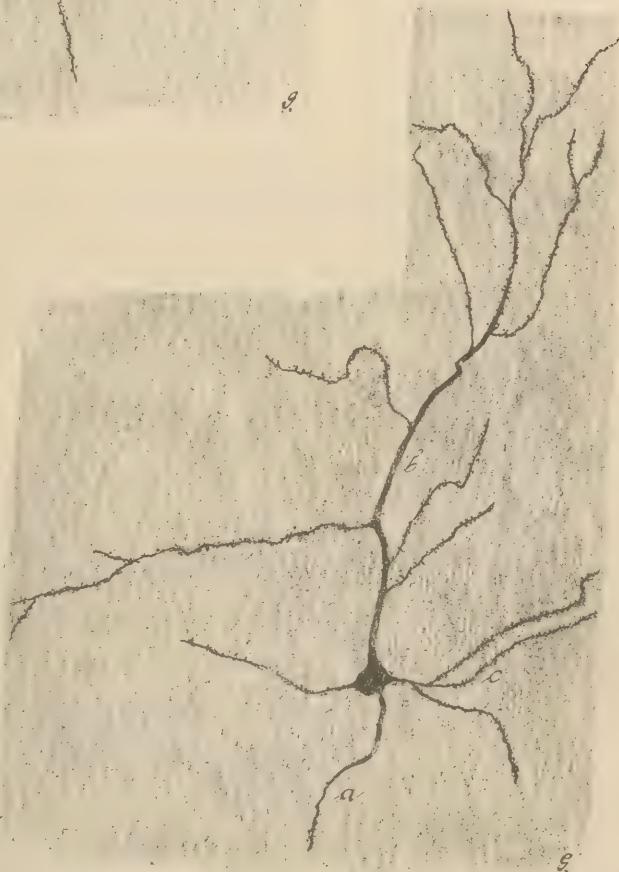


Fig. 2.

PLATE LII.

Cerebellum.

Fig. 1. *Cerebellar convolution*, man; cross-section. M. P. Meth. IV *g* 5, 4 *F.*
a. medullary layer; *b.* granular layer; *c.* Purkinje's cells; *d.* molecular layer; *e.* pia mater.

Fig. 2. *Purkinje's cells*. Golgi's method. H. P. Meth. 16 *f* *F.*
a. cell-body; *b.* axis-cylinder; *c.* dentrites.

Fig. 3. *Granular layer of cerebellum*. H. P. Meth. XVI *f* *F.*
a. cell-body with dendrites; *b.* axiscylinder with T shaped partition in molecular layer.

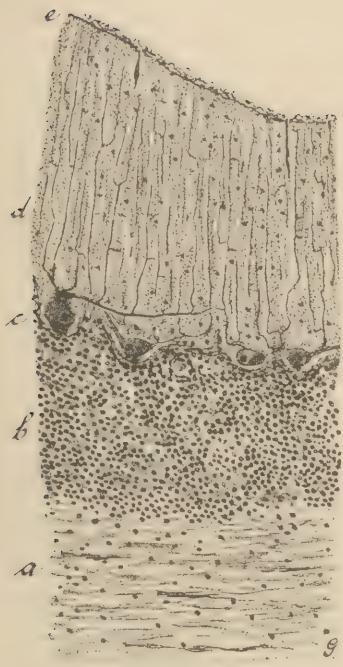


Fig. 1.



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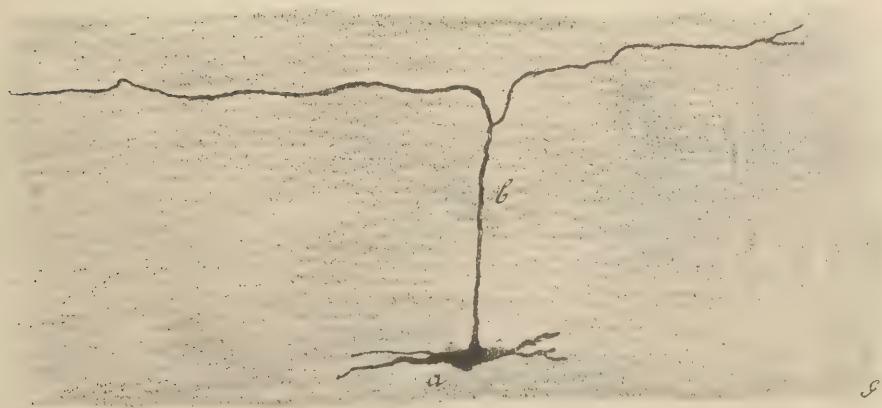


Fig. 3.

LIII. BULBUS OLFACTORIUS AND SPINAL GANGLIA.

PLATE LIII.

Bulbus olfactorius and *spinal ganglia*.

Fig. 1. *Bulbus olfactorius*, rabbit. Section. L. P. Meth. VII *f*, 6 *F*.

a. fibres of olfactory; *b.* stratum glomerulosum; *c.* bipolar granule-cell; *d.* layer of large pyramidal-cells; *e.* external granular layer; *f.* radial fibres; *g.* inner granular layer; *h.* medullary layer.

Fig. 2. *Spinal ganglion*, rabbit; longitudinal section. L. P. Meth IV *i* 5, 4 *F*.

a. posterior root; *b.* ganglion cells; *c.* anterior root; *d.* common nerve trunk. •

Fig 3. *Nerve-fibres from spinal ganglion of dog*. H. P. Meth. *i* 8 *F*.

a. process of ganglion-cell; *b.* T shaped forking; *c.* central nerve fibre; *d.* peripheral nerve-fibre; *e.* Ranvier's constriction.

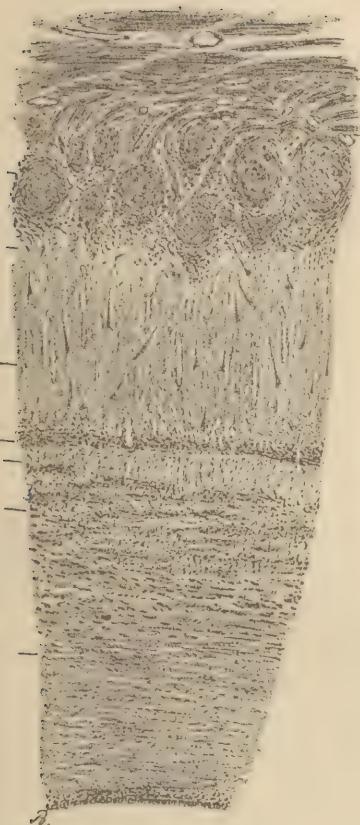


Fig. 1.



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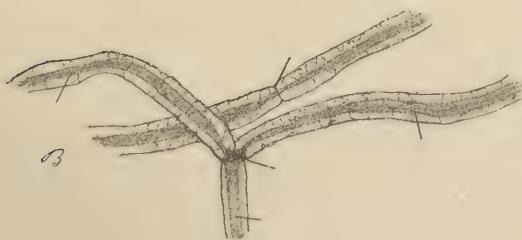


Fig. 3.

LIV. EYE.

PLATE LIV.

Eye.

Fig. 1. *Lachrymal gland*, dog; section through a lobule. L. P. Meth. III i 5, 7 F.

a. larger excretory duct; b. smaller excretory duct; c. glandular substance; d. interstitial connective tissue.

Fig. 2. *Cornea, substantia propria*, tangential section; frog. H. P. Meth. 11 a E. a. nerves; b. corneal corpuscles.

Fig. 3. *Cornical epithelium*, cross-section, cat. H. P. Meth. VII i 6 F.

a. Bowman's membrane; b. stratum cylindricum; c. layer of cells with intercellular spaces, (prickle-cells?); d. layer of flattened cells.

Fig. 4. *Anterior portion of monkey's eye*. L. P. Meth. VII i, 6 F.

A. cornea; B. conjunctiva; C. sclerotic; D. anterior chamber; E. choroid and ciliary body; F. iris; G. zonula Zinnii; H. lense; I. retina; K. vitreous humor. a. corneal epithelium; b. Bowman's membrane; c. substantia propria cornea; d. Descemet's membrane; e. epithelium of Descemet's membrane; f. Schlemm's canal; g. space of Fontana and ligamentum pectinatum; h. choroideal portion of iris; i. sphincter papillae; k. retinal portion of iris; l. ciliary portion of retina; m. processus ciliaris; n. capsule of lense; o. fibres of zonula Zinnii; p. orbicularis ciliaris; q. meridional fibres of ciliary muscle; r. radial fibres of ciliary muscle; s. circular fibres of ciliary muscle; u. conjunctival epithelium.

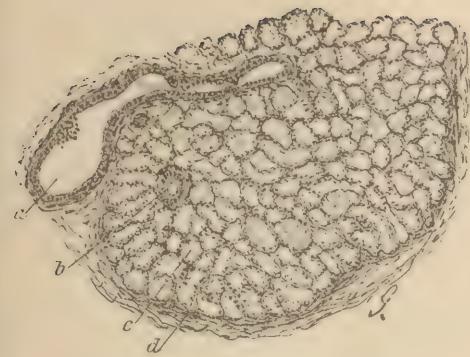


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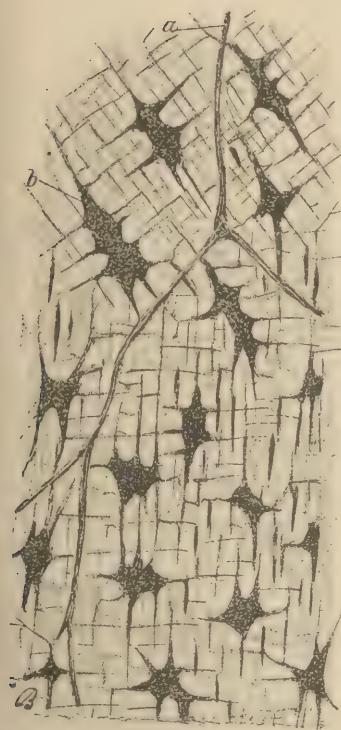


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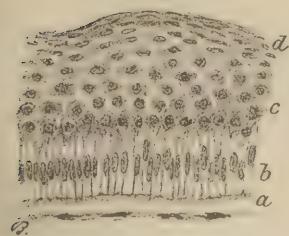


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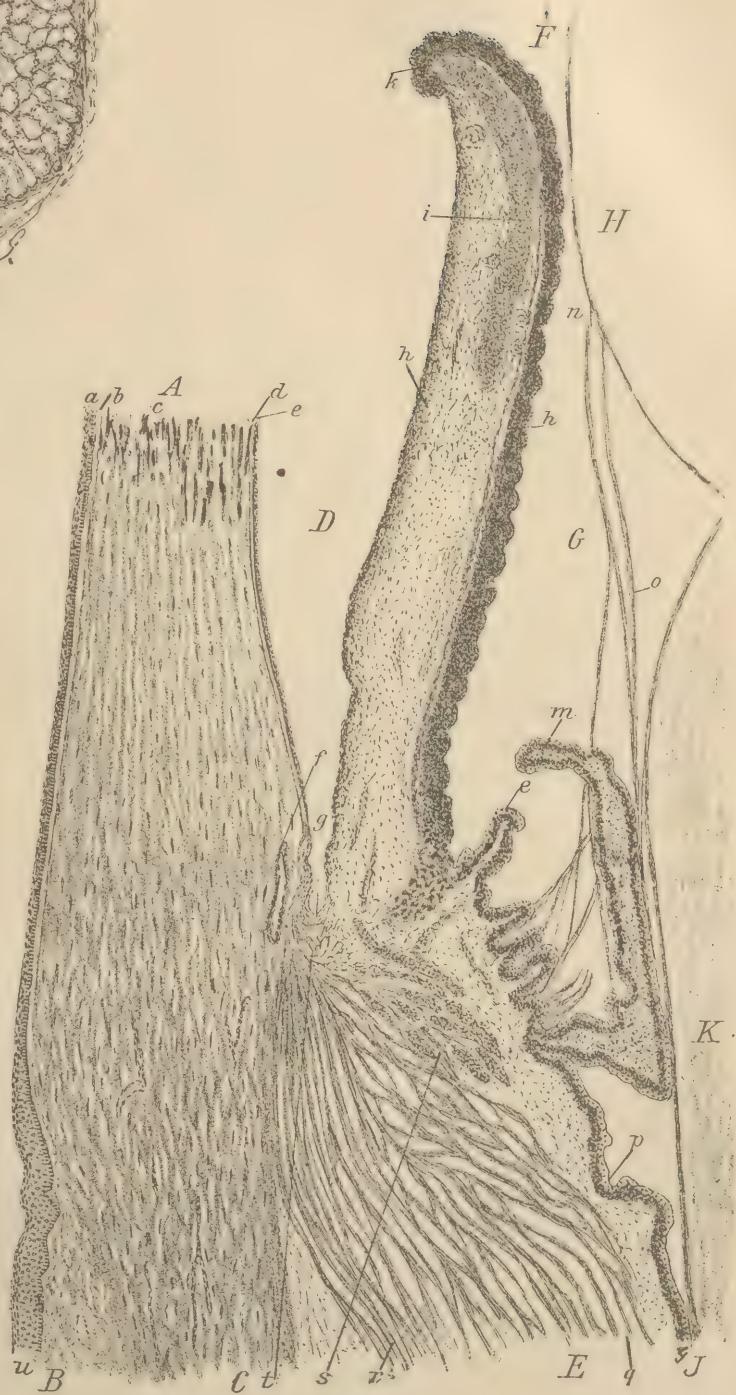


Fig. 4.

L V. EYE.

PLATE LV.

Eye.

Fig. 1. *Lense* of new-born child. M. P. Meth. VII i 6 F.

a. lense-capsule; b. fibres of Zonula Zinnii; c. anterior epithelium of lense; d. place where cells pass into fibres near equator of lense; e. lense-fibres.

Fig. 2. Isolated *lense-fibres*, frog. H. P. Meth. VII c 1 E.

a. surface view; b. side view.

Fig. 3. *Membrana supra-choroidea*. H. P. Meth. IV c 1 E.

a. surface-view of pigmented connective tissue cells; b. side view of same.

Fig. 4. *Pars ciliaris retinae*. Surface of processus ciliaris, monkey. H. P. Meth. VII i 6 F.

a. deep layer with strongly pigmented cells; b. superficial layer, with partly unpigmented cells.

Fig. 5. *Retina from orbicularis ciliaris*, monkey. H. P. Meth. VII i 6 F.

a. choroid; b. hyaline membrane of choroid; c. pigmented layer of retina; d. superficial layer of retina with columnar epithelium; e. fibres of Zonula Zinnii.

Fig. 6. *Retina from ora serrata*, monkey. H. P. Meth. VII i 6 F.

A. Pars optica retinae. B. Pars ciliaris retinae. a. hyaline membrane of choroid; b. pigment epithelium of retina; c. layer of rods and cones; d. membrana limitans externa; e. outer granular layer; f. inter granular layer; g. inner granular layer; h. molecnular layer; i. layer of ganglion cells; k. layer of nerve-fibres; l. membrana limitans interna; m. fibres of Mueller; n. place where ganglion-cells, inner and outer granules coalesce; o. transition of fibres of Mueller into columnar cells of the pars ciliaris.

Fig. 7. *Pigment-epithelium of retina*, surface view, rabbit. H. P. Meth. IV c I E.

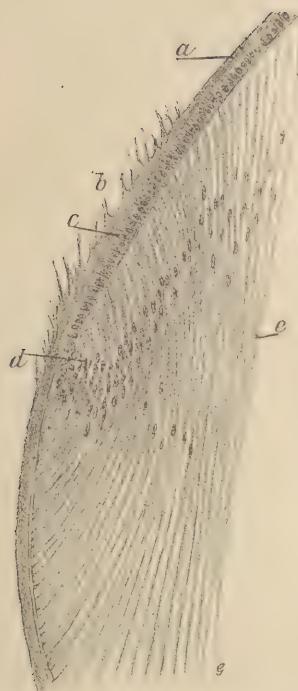


Fig. 1.



Fig. 4.



Fig. 3.

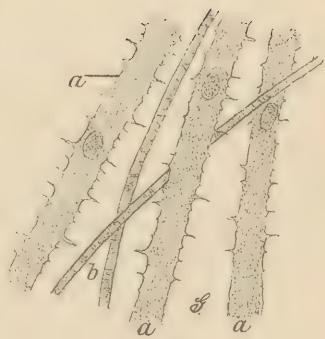


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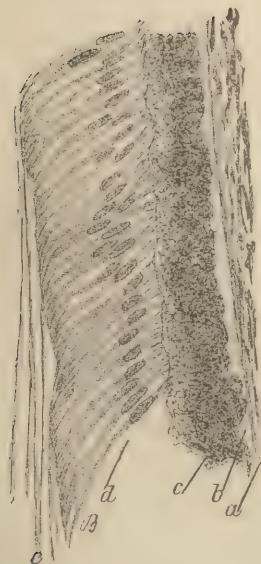


Fig. 5.



Fig. 6.

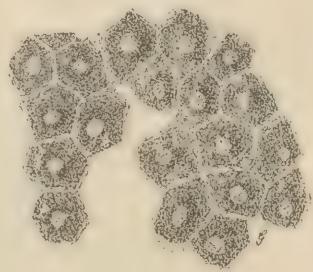


Fig. 7.

PLATE LVI.

Retina.

Fig. 1. *Papilla nervi optici*, human. L. P. Meth. IV i 5, 7 F.

a. longitudinal section of optic nerve; b. central artery and vein of retina; c. membrana limitans interna; d. layer of nerve-fibres of retina; e. layer of ganglion cells; f. inner granular layer; g. outer granular layer; h. layer of rods and cones; i. pigment-epithelium of retina; k. choroidea; l. sclerotic coat; m. lamina cribrosa sclerae; n. dural sheath of optic nerve; o. arachnoidal space of sheath of optic nerve; p. pia-sheath of optic nerve.

Fig. 2. *Membranes of eye of monkey*; transverse section. H. P. Meth. VII i, 6 F.

a. membrana limitans interna; b. layer of nerve-fibres; c. layer of ganglion-cells; d. molecular layer; e. internal granular layer; f. inter-granular layer; g. external granular layer; h. membrana limitans externa; i. cones; k. rods; l. pigment-epithelium of retina; m. hyaloid membrane of choroid; n. chorio-capillaris; o. vascular layer of choroid; p. membrana-supra-choroidea; q. sclerotic; * Mueller's fibres of retina.

Fig. 3. *Macula lutea* of human retina. H. P. Meth. IV i 5, 7 F. (Preparation of G. Fritsch.)

a, b, c, d, e, f, g, h, i, k, l, * as in Fig. 2.

** Fovea centralis retinae; between F. and G. Henle's layer of rods and cones.

Fig. 4. *Retina of frog*. H. P. Meth. VII i, 6 F.

a, b, c, d, e, f, g, h, i, k, l, * as in Fig. 2.

Fig. 5. *External layers of retina of monkey*; tangential section. H. P. Meth. VII i, 6 F.

a. external granules; b. inner segments of cones, cross-sections; c. outer segments of cones, cross-section; d. rods, cross-section.

Fig. 6. *Isolated elements of the retina of a salamander*. H. P. Meth. XII c, 1 E.

A. Mueller's fibre; a. foot at membrana elastica externa; b. nucleus (internal granular layer); c. ramification of external granular layer; B. inner granules; c. cones; d. external swelling; e. inner segment; f. ellipsoid of inner segment; g. external segment; D. rods; d, e, f, g. as in C.; E. fragments of pigment-cells.

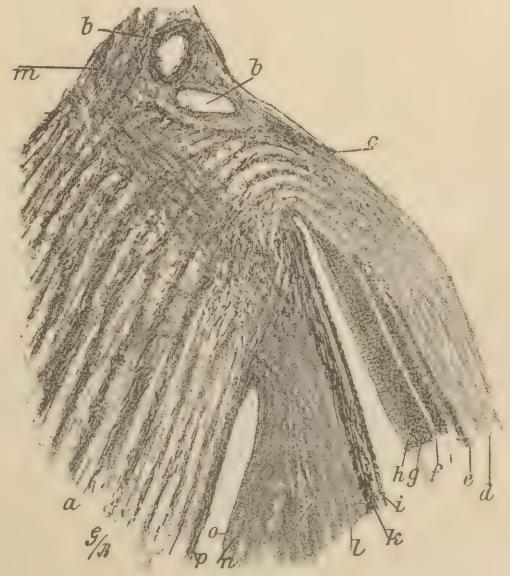
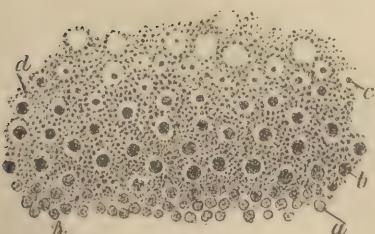
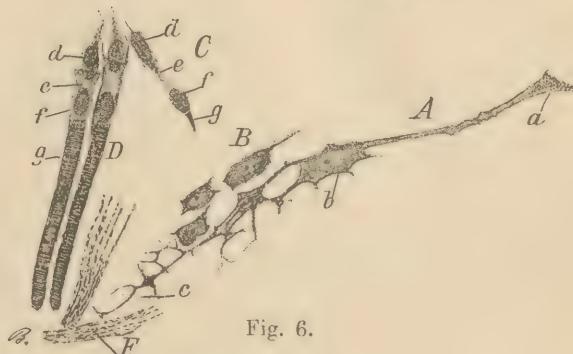
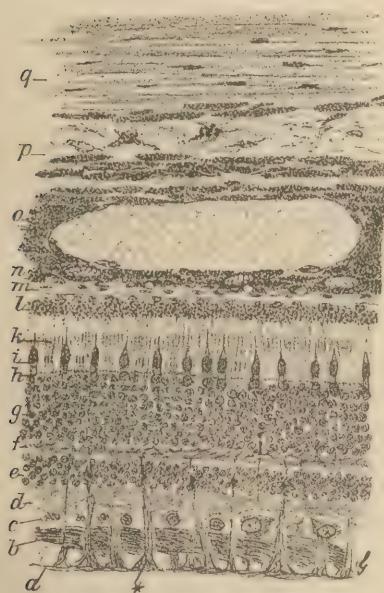
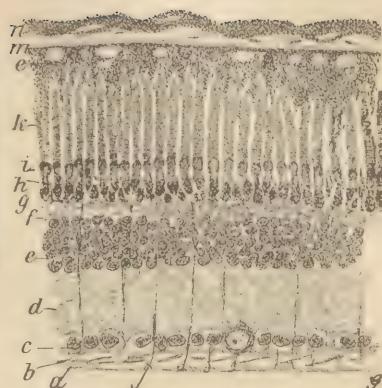
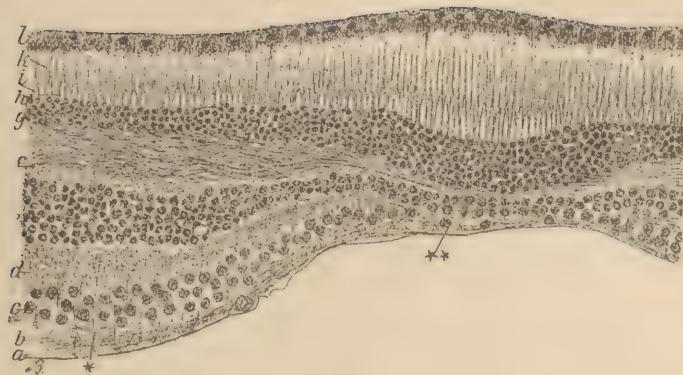


PLATE LVII.

Ear.

Fig. 1. *Fenestra oralis*, rabbit, section. L. P. Meth. VI XV i 5, 7 F. (Preparation of Dr. L. Katz).

a. lower canal of cochlea; *b.* vestibule; *c.* foot-plate of stirrup; *d.* body of stirrup; *e.* tendon; *f.* fibres of *musculus stapedius*; *g.* *nervus facialis*, cross-section; *h.* anvil; *i.* tympanic cavity.

Fig. 2. *Crista acustica* of a vestibular ampulla of young dog. H. P. Meth. VII, XII i 3 F.

a. columnar epithelium; *b.* sensory epithelium; *c.* protective cells; *d.* hair-cells; *e.* cupula; *f.* otholiths; *g.* *nervus vestibularis*.

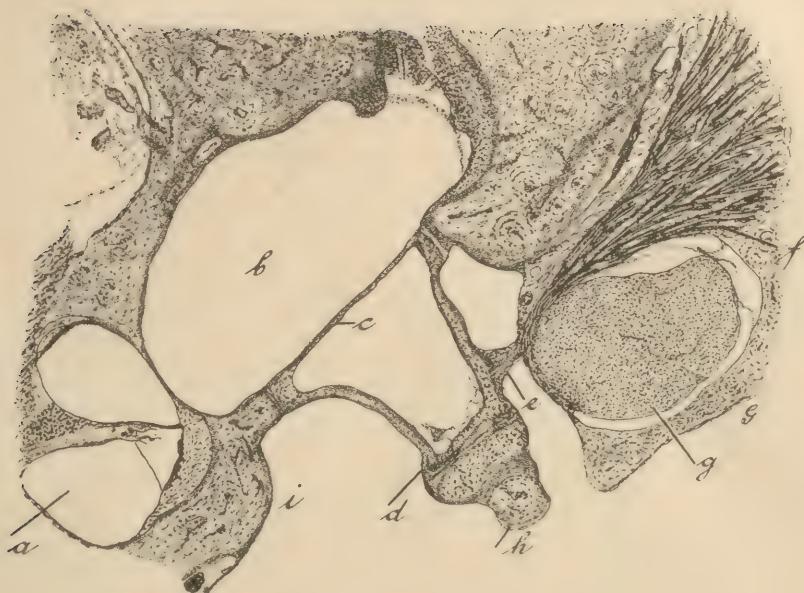


Fig. 1.



Fig. 2.

PLATE LVIII.

Ear.

Fig. 1. *Middle cochlear spiral* of dog, section. L. P. Meth. VI, XV i 5, 7 F.

a. modiolus; b. nervus cochleae; c. ganglion spirale; d. radiating nerve-bundle; e. scala vestibuli; f. canalis cochleae; g. scala tympani; h. lamnia spiralis ossea; i. membrana Reissneri; k. stria vascularis; l. crista spiralis; m. membrana tectoria Corti; n. organ of Corti; o. membrana basilaris; p. ligamentum spirale.

Fig. 2. *Radiating bundle of cochlear nerve*, within lamina spiralis ossea, surface view. M. P. Meth. VI c 1 E.

a. direction towards ganglion; b. foramina nervina; c. limbus tympanicus.

Fig. 3. *Stria vascularis*, dog. H. P. Meth. VI, XV i 6 F.

a. transition of epithelium into membrana basilaris; b. flat epithelium covering vas prominens; c. vas prominens; d. epithelium towards Reissner's membrane with capillaries (e); f. connective tissue of ligamentum spirale.

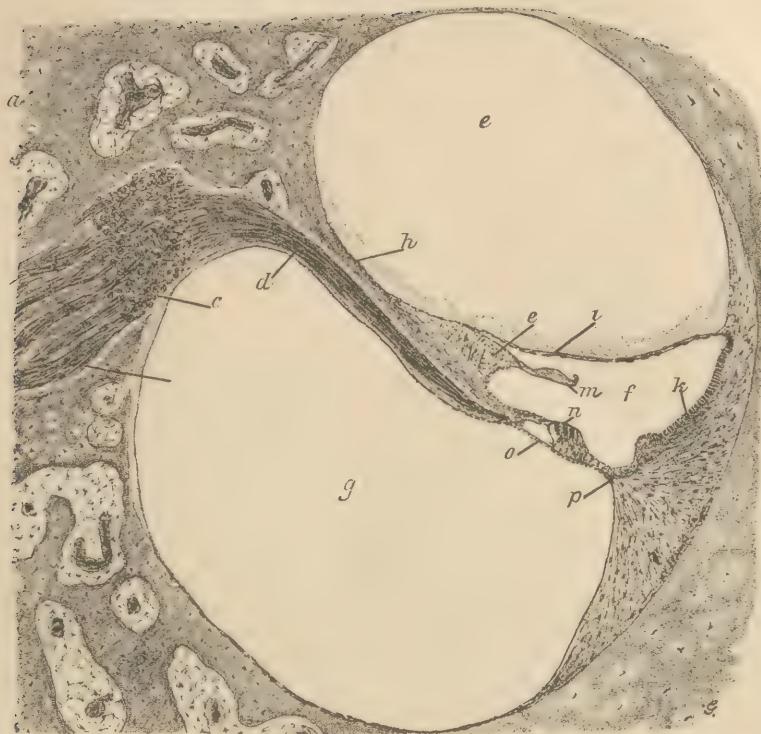


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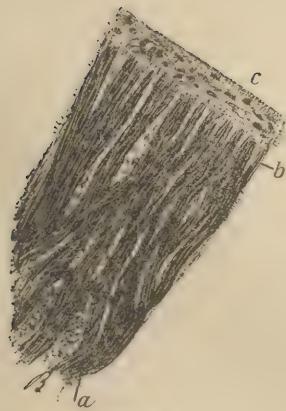


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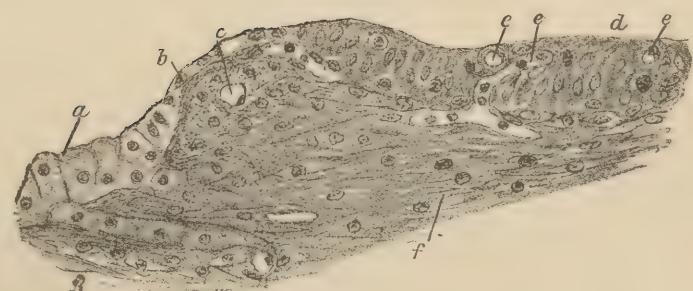


Fig. 3.

LIX. EAR, ORGAN OF CORTI.

PLATE LIX.

Ear, Organ of Corti.

Fig. 1. *Organ of Corti*, dog. H. P. Meth. VI, XV i, 6 F.

a. crista spiralis; b. limbus tympanicus laminae osseae; c. bundle of cochlear nerve; d. membrana tectoria Corti; e. sulcus spiralis; f. foramen nervinum; g. inner supporting cell; h. inner cell of Corti; i. inner rod of Corti; k. transverse section of tunnel-strand; l. vas spirale; m. radiating tunnel fibre; n. outer rod of Corti; o. Deiter's cells; p. outer cells of Corti; q. space of Nuel; r. lateral view of lamina reticularis; s. cross-section of external spiral fibres; t. cells of Hensen; u. fibrillar layer; v. cellular layer of membrana basilaris; w. endothelium of scala tympani.

Fig. 2. *Limbus tympanicus*, after removal of nerves, dog; surface view. M. P. Meth. VI c, 1 E.

a. foramina nervina: place of attachment of inner rods.

Fig. 3. *Deiter's cells* and external cells of Corti, isolated, dog. H. P. Meth. VI c, 1 E.

a. cell-body of Deiter's cell; b. nucleus of Deiter's cell; c. supporting fibre of Deiter's cell; d. "Zangen-becher"—from side; e. from in front. f. phalangeal process of Deiter's cell; g. Corti's cells.

Fig. 4. *Inner cells of Corti*, isolated, dog. H. P. Meth. VI c, 1 E.

a. cover plates; b. cell bodies; c. nuclei; d. branching basal processes.

Fig. 5. *Rods of Corti*, isolated, dog. H. P. Meth. VI c, 1 E.

a. inner rod; b. outer rod; c. basal-portions; d. body; e. head-plates.

Fig. 6. *Lamina reticularis*, surface view, dog.

a. inner Corti's cells; b. internal processes of internal rods of Corti; c. head-plate of inner rods; d. external processes of internal rods; e. beak-like process of external rod; f. first; g. second; h. third row of external cells of Corti; i. first; k. second; l. third row of phalangeal processes of Deiter's cells.

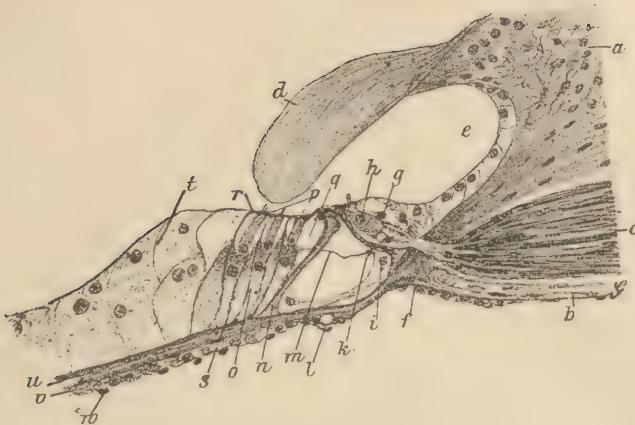


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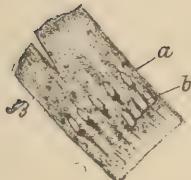


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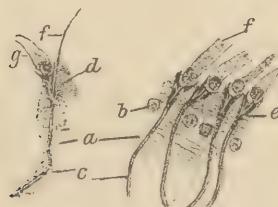


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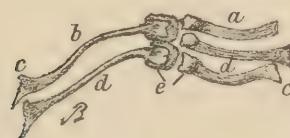


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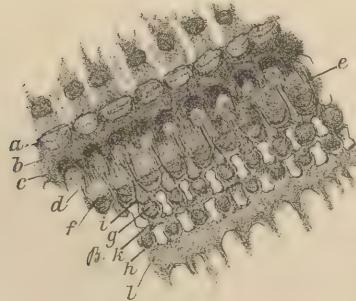


Fig. 6.

LX. NOSE.

PLATE LX.

Nose.

Fig. 1. *Mucous membrane of nose*, monkey. Transitional region between respiratory and sensory portion. M. P. Meth. VII i 6 F.

a. stratified columnar epithelium with beaker cells, from respiratory portion; b. columnar epithelium with granule-cells from regio olfactoria; c. layer of basement-cells; d. excretory duct of Bowman's gland; e. acini of Bowman's gland; f. bundle of olfactory nerve g. excretory duct of a mucous gland; h. acini of mucous gland; i. basement membrane of respiratory epithelium; k. blood-vessels; l. osseous substance.

Fig. 2. *Macerated olfactory epithelium* of frog. H. P. Meth. XII c 1 E..

A. Supporting cell; a. basal process; b. nucleus; c. goblet-shaped space; d. cilia; B. Olfactory cell; e. centri-petal process; f. cell-body with nucleus; g. rod-shaped peripheral process; h. cilia; C. Group of supporting and sensory olfactory cells.

Fig. 3. *Olfactory mucous membrane*, frog. Cross-section. H. P. Meth. Methyl-injection during life after Ehrlich.

g. small bundles of olfactory nerve; b. ramifying into epithelium; c. nuclei of sensory cells; d. peripheral process of sensory cell; e. Bowman's gland.



Fig. 1.

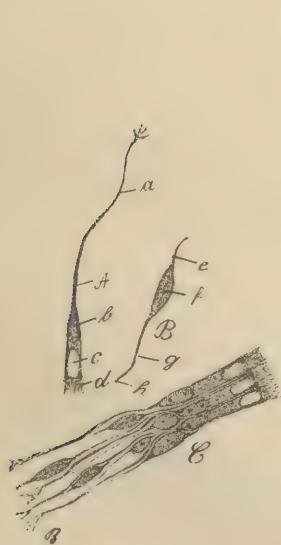


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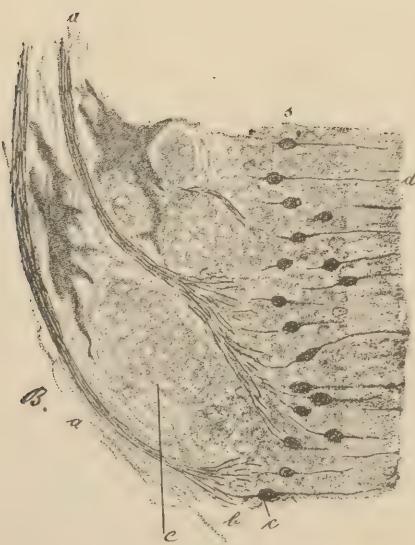


Fig. 3.

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12. Heart valve. XVI. 3, 4.
13. Huxley's layer of hair. XXIII. 4.
14. Hyaline cartilage VI. 3.
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3. Intestinal epithelium. II. 8.
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2. Kidney, pelvis of XXXV. 1, XXXVII. 1, 2, 3.
3. Kupfer's fibrillae of the axis-cylinder. XIII. 2, 5.

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9. Lieberkuehn's glands. XXIX. 1, 2, 3. XXX. 1, 2.
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11. Ligamentum spirale. LVIII. 1, 3.
12. Lense. LV. 1, 8.
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14. Littré's gland. XXXVIII. 2, XXXIX. 2, 4. XL. 3.
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20. Lymph-stomata. III. 3.
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19. " hetero-typical. I. 5.
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26. Muscle fibre, plain. XI. 5, 6, 7, 8.
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30. Stomach. XXVIII.
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34. Substantia gelatinosa Rolandi. (See Spinal marrow and Peduncle of brain.)
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3. Tegmentum. XLVIII. 7.
4. Tendon. IV. 2, 3, 4.
5. Tendon embryonic. IV. 8.
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7. Thymus-gland. XVIII. 3.
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9. Tonsil. XXVII. 2.
10. Tooth. VIII. 4, 5, IX.
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13. Trabeculae of Spleen. XVIII. 5.
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15. Tract gracile. (See spinal chord and peduncle of brain.)
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18. Transitional epithelium of Urethra. XXXVIII. 1.
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20. Tubules, collecting of kidney. XXXV. 1, XXXVI. 6, 7, XXXVIII. 1.
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1. Umbilical chord, mucous tissue of. IV. 1.
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3. Urethra. XXXVIII, XXXIX.
4. Uterus. XL. 3, 4.
5. Uterus, epithelium of. II. 1.
6. Utricular glands of uterus. XLIV, 3, 4.

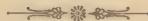
V.

1. Vagina XLIV, 1.
2. Vas deferens. XLI. 1.
3. Vas efferens. XLI. 2.
4. Vegetable cells. I. 1, 2.
5. Vena dorsalis penis. XXXIX. 2, XL. 1.
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11. Vesicula prostatica. XXXVIII. 4.
12. Vieq. d'Azyr's strand. L. 2.
13. Volkmaan's canals VIII. 2.
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Z.

1. Zonula Zinni. LIV. 4.
2. "Zwischen-Koerperchen." I. 5.

Explanation of Letters and Figures.



Capital Roman figures indicate the preparation of the material—Roman letters the preparation of the specimen—Arabian figures the staining—capital Roman letters the mounting.

Preparation of the material.

I.	Fresh material.	VIII.	Maceration in $\frac{1}{2}$ percent. acetic acid.
II.	Drying.	IX.	" 30 percent. caustic potass.
III.	Hardening in Alcohol.	X.	" conc. nitr. acid and chlorate potass. (<i>Kuehne</i>).
IV.	" " Mueller's fluid.	XI.	" 33 percent. alcohol (<i>Ranvier</i>).
V.	" 1 percent. chromic acid.	XII.	" 1 percent. osmic acid.
VI.	" " chrom-osmium-acetic-acid. (<i>Flemming</i>).	XIII.	" conc. hydrochloric acid.
VII.	" 10 percent. nitric acid—later bichromate potass. (<i>Benda</i>).	XIV.	" highly dil. chromic acid.
		XV.	Decalcification in dilute hydro-chloric acid.

Preparation of specimen.

a.	separation.	h.	Microtome-section after infiltration with gum.
b.	spreading or smearing.	i.	" " infiltration with celloidine.
c.	teasing.	j.	" " infiltration with paraffine.
d.	section with scissors.	k.	" Grinding down on stone.
e.	" " razor.		
f.	" " freezing microtome.		
g.	Microtome-section after inclosing with par- affine.		

Staining.

1.	Unstained specimen.	11.	Gold (<i>Golgi</i> , Arsenious acid and gold-chloride).
2.	Methylene-blue.	12.	Gold (<i>Ranvier</i> , formic acid, gold-chloride).
3.	Safranine.	13.	Osmium.
4.	Neutral carmine (<i>Fritsch</i>).	14.	Silver-nitrate.
5.	Alum haematoxyline (<i>Boehmer</i>).	15.	Staining of medullary sheath (<i>Weigert</i> or <i>Pal</i> , chrom-haematoxyline).
6.	Iron-haematoxyline (<i>Benda</i>).	16.	Bichromate potass. osmium, silver nitrate (rapid method of <i>Golgi</i>).
7.	Eosine.		
8.	Acid fuchsine.		
9.	Diamond green.		
10.	Picric acid.		

Mounting.

A.	Natural media.	D.	Conc. potass-acet.
B.	Physiological sol. sodium chloride.	E.	Glycerin or gum Arabic and glycerin.
C.	30 percent. acetic acid.	F.	Canada-balsam.

Other Abbreviations.

H. P.	= High Power.	L. P.	= Low Power.
M. P.	= Medium Power.		





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